



**San Diego Unified School District**

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## PROJECT BENEFITS

*(a) a description of how the wireless devices were integrated into the project's curriculum and objectives (including approximately how many times per week the wireless devices were used to access program materials remotely and how many wireless devices were used during this period of time);*

(a) The Learning-on-the-Go EDU 2011 Pilot Program is truly changing the learning landscape in San Diego Unified School District. Teachers are shifting instructional design and better meeting the needs of our 21<sup>st</sup> century learners. Please view a video documenting the various stages of implementation of the Learning-on-the-Go (LOGO) Program at SDUSD at the link below. A DVD of the video is also being sent along with the hard copy of this report.

<http://tube.sandi.net/video/play.php?vid=1515>

In November 2008 San Diego voters approved a significant investment in new technology for District schools. "Proposition S" expressed the will of the community to address inequities in access to technology (the digital divide) by doing three things: (1) implementing a 21<sup>st</sup> century learning environment; (2) equipping both classrooms and students with wireless technology; and (3) upgrading infrastructure to support the wireless mission. Proposition S will provide over \$42 million per year through 2014 (and a total of \$400 million over 15 years) in funding for the SDUSD "21st Century (i21) Interactive Classroom Initiative," a five-year phased plan to implement the significant investment in new educational technology in public schools. A key purpose of this Initiative is to ensure that the achievement gaps among groups of SDUSD students do not grow as a result of unequal access to the educational technologies that support learning.

The i21 Initiative creates an engaging, interconnected 21<sup>st</sup> century learning environment that, coupled with ongoing teacher professional development, (a) provides opportunity for new learning practices that will support the teaching and learning of 21st century skill outcomes; (b) allows all students to become expert learners in relevant, real world 21st century contexts (e.g., through project-based or other applied work); and (d) provides universal design in quality learning tools and technology resources.

### Background: 1:1 Pilot Program at Innovation Middle School

Innovation Middle was the first middle school to expand ubiquitous *Always-On* access using 3G services through a Pilot Program within i21the Initiative, beginning in the 2009-2010 school year. Innovation Middle School issued each student a Lenovo Netbook with built-in 3G and content filtering for 24/7 Internet connection with their schoolwork, teachers and classmates. Students reported that they believed that the school-to-home access enhanced their learning. At the close of the 2<sup>nd</sup> year of implementation, academic results of the program were encouraging with Innovation Middle School boasting a 43 point increase in the school's API score, the highest gain of any middle school in the district.

### Taking i21 to the Next Level: Learning-on-the-Go EDU2011

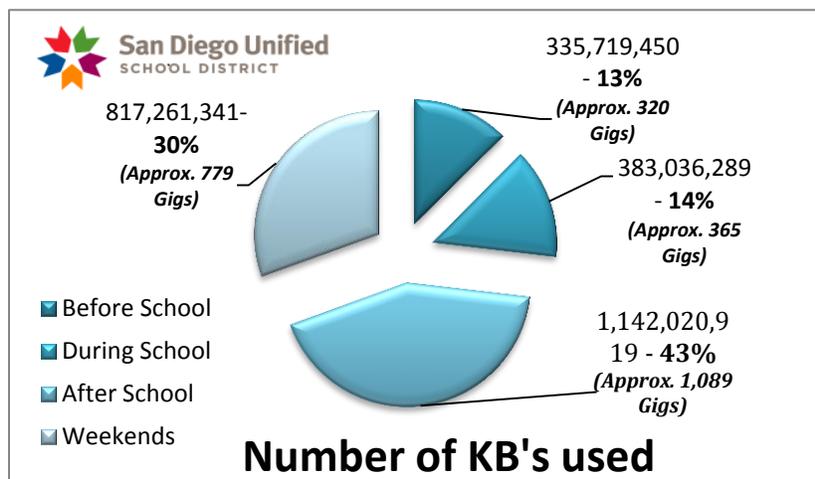
The Learning-on-the-Go Grant has enabled SDUSD to scale the program that began at Innovation Middle School to 10 other middle schools. The following table illustrates the schools involved, number of students, number of teachers, and type of broadband access provided.

Middle School	LOGO Grades	Number of LOGO students	Number of LOGO netbooks	Number of teachers in Project	Broadband Access
Dana	6	352	361	15	3G AT&T
Knox	6	116	121	11	4G Verizon
Lewis	6	362	375	18	3G AT&T
Longfellow	6	36	40	6	3G AT&T
Mann	6	305	310	19	3G AT&T
Montgomery	6	142	147	12	4G Verizon
Pershing	6	249	260	11	4G Verizon
Wilson	6	218	217	15	3G AT&T
Innovation	7, 8	489	507	20	3G AT&T
Millennial Tech	6, 7, 8	539	576	26	3G AT&T
<b>Totals</b>		<b>2808</b>	<b>2914</b>	<b>153</b>	

The chart below shows the usage data from all students participating in the LOGO Program at SDUSD. The average usage per student per month, from November through January, was 1.003 GB.

	KB usage ATT (2,301 students)	KB usage Verizon (507 students)	Total (KB)
Nov.	1,946,858,186.00	913,310.00	1,947,771,496.00
Dec.	2,678,037,999.00	1,047,527.00	2,679,085,526.00
Jan.	3,951,265,672.00	280,732,989.00	4,231,998,661.00
<b>Total</b>	<b>8,576,161,857.00</b>	<b>282,693,826.00</b>	<b>8,858,855,683.00</b>
Avg./month	2,858,720,619.00	94,231,275.33	2,952,951,894.33
		<b>KB</b>	<b>GB</b>
Data usage student for 3 months(2,808)		3,154,863.00	3.009
Avg. KB per student/month(2,808)		1,051,621.045	1.003

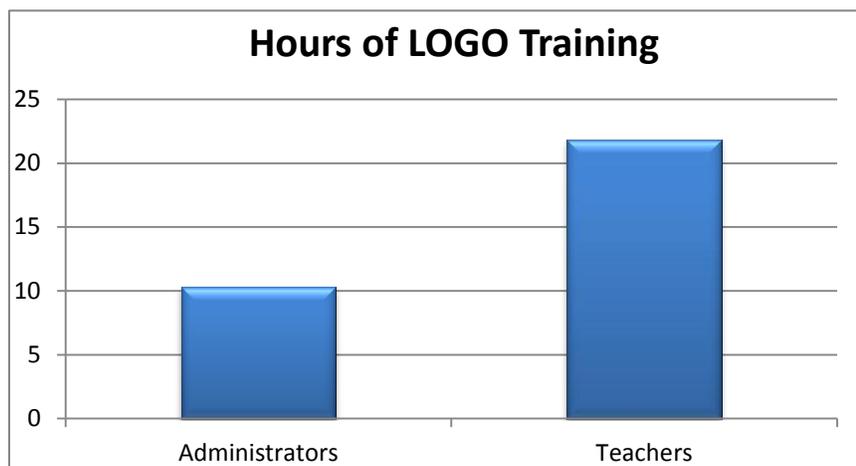
AT&T was also able to provide additional information on the students utilizing their 3g access. The chart below shows how much data is being utilized by students on 3g at different times of the day during the month of November.



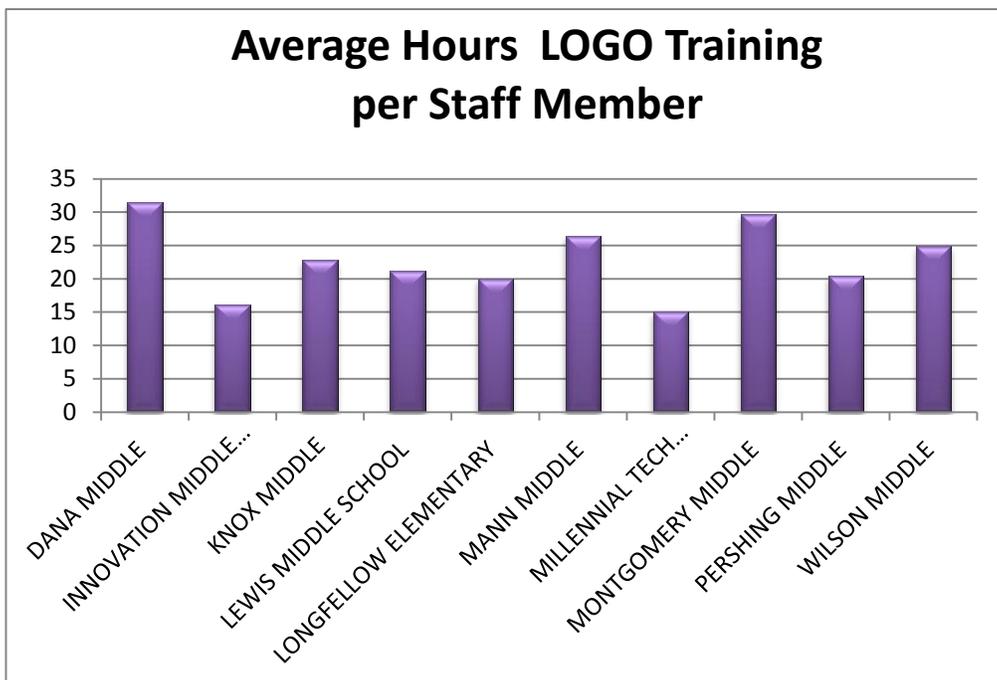
*(b) if available, a detailed summary of any data collected by the school or library on the project's outcomes and achievement of the project's goals, including usage of educational and research resources by students and library patrons and number of devices actually used; for schools, include any data collected regarding the impact on test scores or other measures of achievement levels for those students participating in the off-premises wireless project. For example, students enrolled at the Summit Academy Community School for Alternative Learners are on individualized learning plans and have Attention Deficit Disorder (ADD) or Aspergers' Disorder, which makes learning a challenge in a traditional classroom environment.*

### Professional Development

SDUSD teachers involved in the LOGO Program were invited to attend all of the professional development workshops currently offered to i21 Initiative classroom teachers including 2-hour sessions on such topics as the utilization of a Learning Management System, integrating digital resources into Promethean flipcharts, wikis, blogging, and interactive mapping technologies. Teachers involved in the LOGO Program have also experienced additional trainings including visits to other SDUSD Learning-on-the-Go Pilot Program school sites for sharing of best practices and collaborative curriculum planning. Teachers report that this additional support is essential to the success of the program.



Teachers and administrators have attended a significant amount of trainings related to the Learning-on-the-Go Pilot Program. The graph to the right shows the average number of LOGO related training hours school administrators and teachers have obtained since the onset of the LOGO Pilot Program until Feb. 2012. These hours are above and beyond the initial training sequence for all i21 teachers. Staff at all school sites involved in the LOGO Program have taken advantage of these offerings as illustrated by the graph on page 5. Teachers are eager to attend these opportunities to expand their skill set in relation to teaching and learning in an environment where all students have equal access to rich digital resources. (While the PD numbers for both Innovation Middle School and Millennial Tech Middle School seem low, it is important to remember that these sites were involved in either the Mobile Learning Programs or a 1:1 computing environment at SDUSD beginning in the 2009-2010 school year. Teachers attended additional professional development at that time to scale 1:1 computing campus-wide.)



### “Flipping the Classroom”

Many LOGO teachers have attended a “Flipping” workshop and have since began “Flipping” their classrooms instruction. This approach involves inverting traditional teaching methods where students listen to lectures at home and complete “homework” at school. That is to say, teachers create short instructional videos that students watch at home where they have the ability to rewind and re-watch at their own pace. In class the next day, students take a quick online assessment and are placed in differentiated groups that allows the teacher to provide a more personalized learning environment with one-on-one attention and small group instruction. One teacher who began flipping her classroom this year stated, “I feel like I really know my students now because I can tell you after a 50 minute period I’ve probably talked to every single student at least three or four times and that kind of personal attention for students you don’t necessarily get with direct instruction.”

Prior to the LOGO Program, this innovative teaching method was not being utilized because teachers could not rely on all students having access to the internet. “Flipping” and other forward-thinking strategies can only occur if every student has broadband access to the rich digital instructional materials outside of school hours.

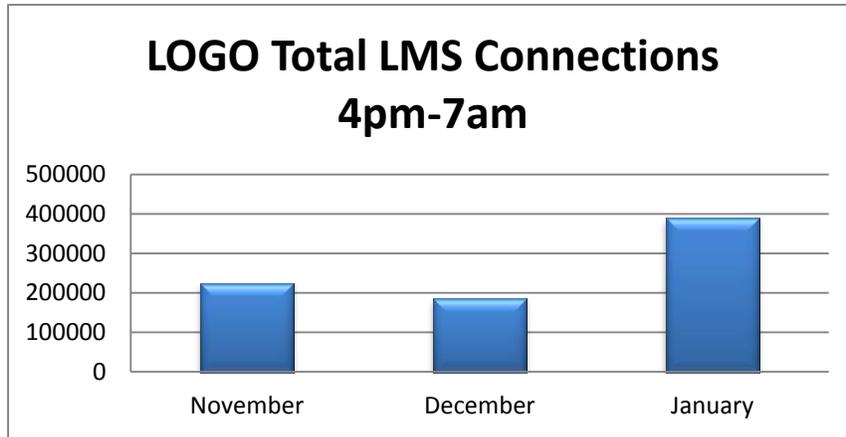
### Curriculum Database Usage

Teachers involved in the LOGO Program were required to attend training on the newly adopted District-wide curriculum database which provides a single interface for accessing all visual resources both inside the school district and at home. This robust multimedia resource allows teachers to access videos and share curricular content with both colleagues and students to be utilized both at school and at home. In only a few short months (October 2011-Feb. 2012), over 1540 resources have been viewed after school, between the hours of 4pm and 7am.

### Learning Management System (LMS) Usage

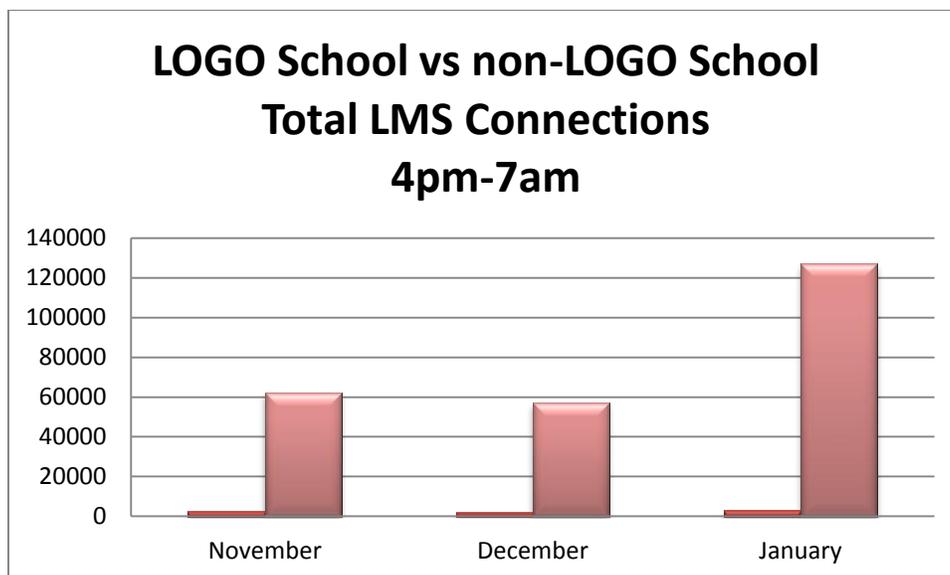
Teachers involved in Learning-on-the-Go EDU2011 utilize an Open Source, web-based Learning Management System (LMS) called Moodle that allows them to create effective online, constructivist learning communities. The

LMS allows students to experience curricula through differentiated learning opportunities which allows for a more individualized approach to student learning. The use of this LMS has significantly increased at the school sites involved in the LOGO Pilot Program. All students can now access the LMS through their LOGO devices with broadband access and can be expected to participate in online activities after school and on the weekends. The usage data for all LOGO schools, since the distribution of the devices with broadband access, can be seen in the following graph. Each connection reflects the use of a digital resource, including interactive activities.



It is important to note that schools were not in session for one week in November and two weeks in December. The January data includes a full month of data from Jan. 3 to February 3. In addition, all teachers and school sites were not implementing available resources, including the LMS, to the same degree prior to the LOGO Program. Although LOGO schools involved in 1:1 Programs previously show more usage than others, all LOGO schools continue to utilize the LMS at a greater rate.

The out-of-school use of the LMS by students at LOGO and non-LOGO schools in the same neighborhood with similar demographics is compared in the graph below. Since the onset of the LOGO Program, LMS usage is extensively higher at LOGO schools where teachers know that all students have access to the internet outside of school.



## The Administrator View

Administrators at participating LOGO schools overwhelmingly report an increase in engagement and excitement on their campuses since the onset of Learning-on-the Go EDU2011. One administrator likened it to a classic Disney movie when Dumbo believes he can fly because he is holding a feather. Her staff notices a huge increase in academic and citizenship performance this year and wonder if the constant reinforcement of possessing the netbook 24/7 makes their students have greater confidence in their own capacity as learners.

LOGO Administrators have reported the following:

“Students swagger around campus with the computer. The status of learning has been elevated because of program. All kids have it, none are left out and all enjoy sharing their growth with each other. Equal access at home makes a difference in student willingness to do the work at school.”

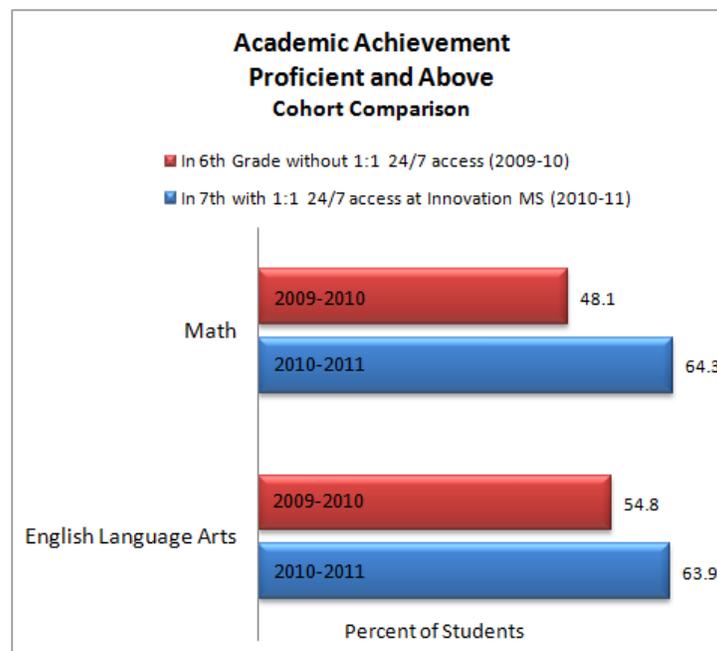
“The keyboard is superior to writing on paper for many our students in our Special Day Class. Many of our youngsters with special needs have processing issues. The struggle to make text look right on paper with a pencil can actually impede learning and communication for some students. Watching the speed and pride of our students as they take notes and then read, review and revise their own work is just amazing. The keyboard interface 24/7 is opening the incredible potential of all students to achieve.”

“Our school website is used more than ever before and parent communication has improved. We have an “Anonymous Bully Report” online and LOGO has improved student reporting. We believe that students feel safer reporting from home and now all students have this access.”

“This program is very positive and we would love the opportunity to continue it next year.”

## Achievement

After utilizing wireless broadband on student devices for over two years, Innovation Middle School has shown significant increases in student achievement including a gain of 43 API points from 2010 to 2011, the highest growth for any middle school in SDUSD. The chart below indicates the growth of this year’s 8<sup>th</sup> graders as they transitioned from 6<sup>th</sup> grade in their elementary school to attending 7<sup>th</sup> grade in Innovation’s Mobile Learning environment.

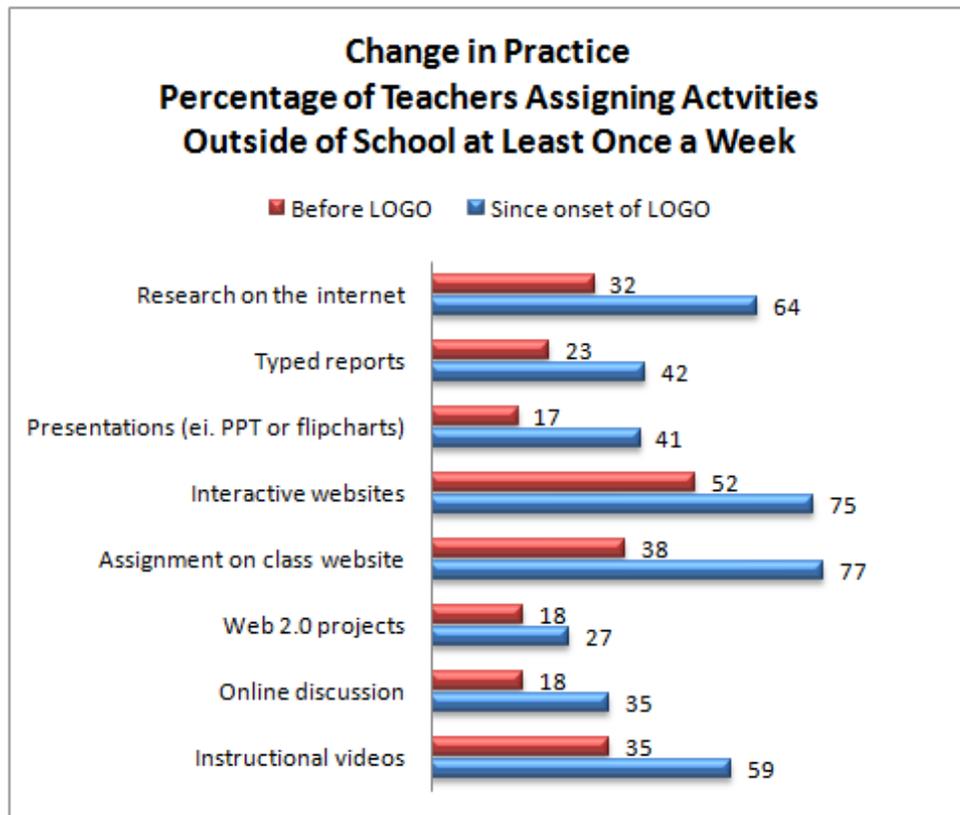


Initial data from academic, citizenship, and benchmark grades from all school sites participating in the LOGO Program is promising thus far, although inconclusive due to the limited time of involvement. For instance, three of the LOGO schools have shown an increase in the percentage of students receiving the highest citizenship grade by up to 32%. The number of A's earned by students at the grading quarter has also increased by double digits (14% and 17%, respectively) at two LOGO schools.

*(c) if available, a copy of any results or summary of the results of any survey given to students, teachers, parents or library patrons to assess any aspects of the off-premises wireless project*

Surveys were administered to teachers, students, parents, and administrators at the onset of the Learning-on-the-Go Program. Students and teachers were then surveyed again mid-year.

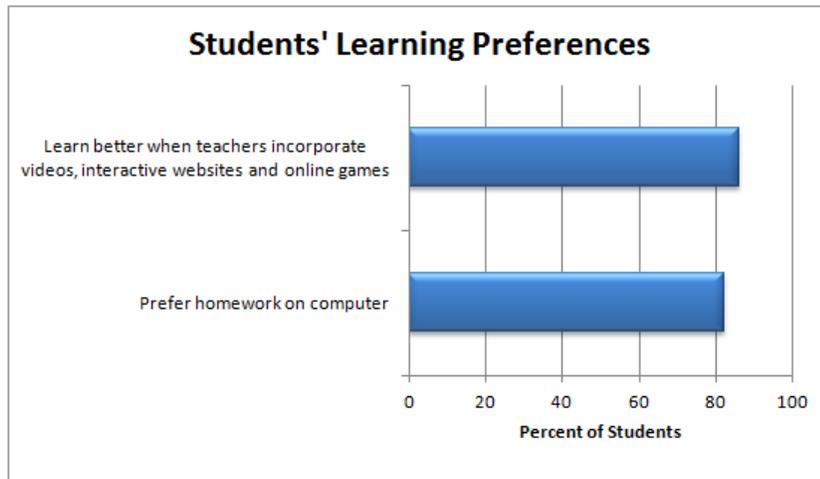
At the onset of the Program, over 37% of students responded that they did not have access to high speed internet or had limited access to high speed internet. As a result of this inequitable access outside of school, teachers did not regularly create assignments online that utilized rich digital resources and collaborative tools. Prior to the LOGO Program, teachers overwhelmingly reported that they never required students to complete a variety of activities that require the use of a digital device with internet access such as typed research reports, projects, online discussions, or the use of interactive websites and other Web 2.0 tools. In only a few short months since the start of the Program, this is rapidly changing and as illustrated in the following chart .



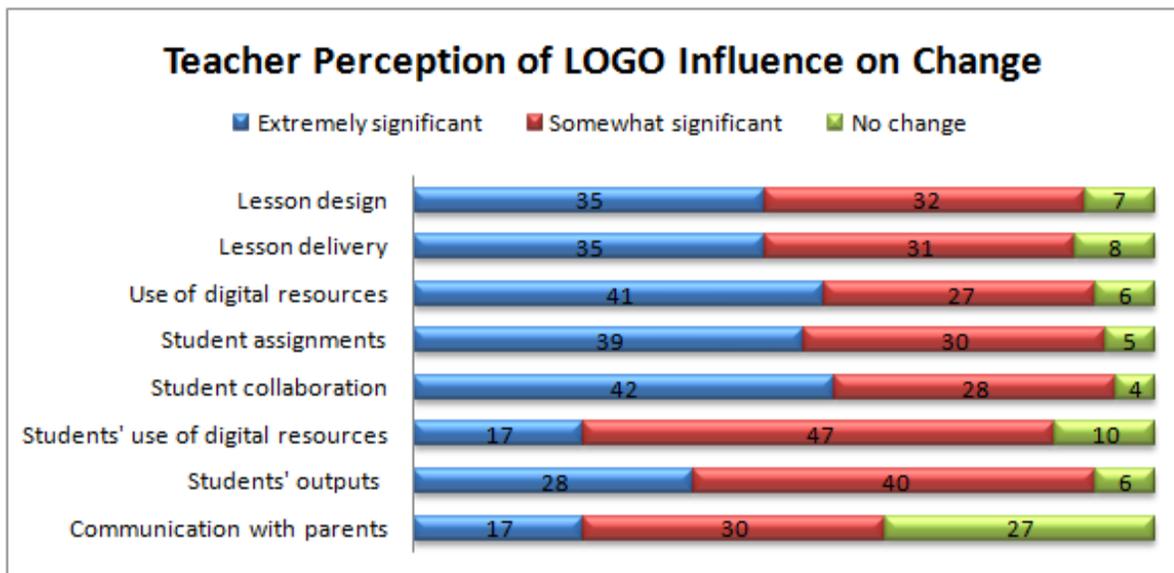
20% of LOGO students not involved in a 1:1 mobile device program last year reported that they turned in work to a teacher on a class website more than once a week. As of Jan. 2012, 58% students report that they turn in work to a teacher website more than once a week, with 28% reporting they do so on a daily basis. The same students also report a 26% increase of the utilization of computer programs outside of school that help with math or

reading skills. In addition, the percent of students reporting that they now check their grades, homework assignments, and attendance records online at least once a week has increased more than 40%.

82% of students involved in the LOGO Program report that they would rather do assignments outside of school (ie. homework) on a computer. 86% stated that they think they learn better when their teachers incorporate technology such as videos, interactive websites, and online games into instruction. 77% report that it is easier for them to understand information when they see it in video format.



Through the Learning-on-the-Go Program, teachers can now better meet the needs of their 21<sup>st</sup> century learners with the knowledge that all students have access to the same resources at any time. Inevitably, as teacher expectations for the types of activities that can be completed outside of school shifts, the instructional design at school is also undergoing a transformation. Teachers overwhelmingly reported that the LOGO Program has significantly changed their lesson design and delivery. Although it has been a short time since the initiation of the LOGO Program, its effect on teaching and learning is undeniable.



The involvement and support of parents has also been a large part of the success of the LOGO Program. 97% of parents reported that they thought having broadband access anywhere outside of school to do school

work is important for their child's education. Over **91%** of parents said that they prefer that their child use a school-issued computer that includes software used at school, as well as filtered internet with built-in safeguards. **95%** of parents said that if given the choice they would like this program to continue next year.

Parent feedback involving the LOGO Program has been overwhelmingly positive:

*“Having wireless internet is so great because my child can do her homework/school work anywhere and that is so important especially because she is back and forth between family because I am a single mom and work full time...”*

*“His organizational skills, desire to work, and his interest in his education has also vastly improved as a result of this netbook. This program is invaluable to him and also to students who would not otherwise have this opportunity.”*

*“Fantastic program. Has helped us tremendously as we do not have a computer or internet at home. Now I check grades and my child has access to everything she needs to be successful.”*

*“The LOGO program enhances their education and should be a part of every school in the district.”*

*“Best program ever.”*

*“I cannot stress enough how beneficial the LOGO program has been to me as a parent and to my grandson as a student...I would like to say that I feel this program should be extended to all grade levels.”*

*“This program has given my son the ability to do his homework anywhere he is. My son stays with me half the time and the other half with his dad and sometimes he saves his stuff on the laptop and this has allowed him not to forget his homework when he's at my house.”*

*“I love this program. My son is more engaged in his school work, seems to be learning a lot more because he is not bored. It is nice to know exactly what his homework is each night, and what his current grades are at any given time, so that I can best support him.”*

*“Going to school and learning for her have become a joy this year...I love this program!”*

*“if Dylan needs to finish a project or homework while were out he can bring his laptop and work on his school work and get things done. It also teaches him responsibility for a very expensive item and make him accountable”*

*“The LOGO program has been such an awesome part of my child's learning experience. There is no more questioning assignments, due dates, grades. My child has become sufficiently more responsible about turning in work. The netbook is always accessible, assignments are saved and ready to turn in. From building technical confidence through LOGO, my child can skype grandparents, email friends and family, search for information and events. At 11, my child has a great grasp of the tools she will need to communicate and learn for the future.”*

*“Me Gusta el programa por que les da la oportunidad a los estudiantes a aprender mas rápido, e introducirse mas a la tecnología.”*

## PROJECT COSTS

- (a) *an analysis of the per student or per patron cost of the off-premises connectivity; for schools, specify, by term used by the school (for example, by quarter or semester), the number of students and teachers involved or served as part of the project, the number of those students and teachers involved or served that were able to participate as a result of E-rate support, and, where appropriate, the number of students at each grade level using the wireless devices for Internet access for each specified term*
- The cost of the project is illustrated in the following table.

Learning-on-the-Go Pilot Program Cost per School						
School	Gr. 6	Gr. 7	Gr. 8	Student Total	Cost of Mobile Broadband Access/ month (\$35.17/month)	Cost of Mobile Broadband/school year (10 months)
Dana	352			352	\$ 12,379.84	\$ 123,798.40
Innovation		229	260	489	\$ 17,198.13	\$ 171,981.30
Knox	116			116	\$ 4,079.72	\$ 40,797.20
Lewis	362			362	\$ 12,731.54	\$ 127,315.40
Longfellow	36			36	\$ 1,266.12	\$ 12,661.20
Mann	305			305	\$ 10,726.85	\$ 107,268.50
Millennial Tech	188	187	164	539	\$ 18,956.63	\$ 189,566.30
Montgomery	142			142	\$ 4,994.14	\$ 49,941.40
Pershing	249			249	\$ 8,757.33	\$ 87,573.30
Wilson	218			218	\$ 7,667.06	\$ 76,670.60
<b>Grand Total</b>	<b>1968</b>	<b>416</b>	<b>424</b>	<b>2808</b>	<b>\$ 98,757.36</b>	<b>\$ 987,573.60</b>

In-kind costs of the LOGO Program includes wireless netbook for each student, professional development opportunities for teachers, on-site teacher support, on-site technical support, and curriculum development.

## EFFECTIVENESS OF PROTECTIVE MEASURES

*(a) a detailed description of the measures, including specific software or filtering mechanisms, that were taken to ensure compliance with the Children's Internet Protection Act as well as a description of measures that were taken to protect against waste, fraud and abuse; and*

The San Diego Unified School District has addressed these concerns and risks by implementing the Guide Mobile Filter (GMF), a Mobile Internet filtering solution from Lightspeed Systems, which ensures the safety of students by enforcing District Acceptable Use Policies. The GMF provides CIPA-compliant Internet filtering for mobile computers; reporting of off-network activity; ability to block all forms of proxy servers (anonymous and secure); forced SafeSearch for Google and Yahoo search engines; local policy control (Active Directory and LDAP); password-protected uninstall; and cross-platform support for Windows and Macintosh (including iPad, iPhone, and iPod touch devices). The GMF works from any location, with any type of Internet connection.

The GMF ensures a safe online learning experience on both private and public networks. It is carrier independent:

It extends policies and protection to off-network computers. District Acceptable Use Policies protect both the user and the equipment. Traditionally when laptops were taken off the network they had no content filtering applied. GMF allows SDUSD to ensure that blocked sites remain blocked, no matter where the computer is being used.

It keeps users safe with comprehensive filtering. The GMF detects and/or blocks access to inappropriate material on the Internet based on an extensive, education-specific URL database and custom allow and block lists, helping to ensure safety and CIPA compliance.

It reduces the cost, time, and frustration of compromised computers. By blocking sites known as threats for spyware, malware, and viruses, the GMF helps keep school computers secure and safe when they are off the network, helping to keep computers functioning properly.

The GMF communicates Internet-browser requests from the mobile computer to a Lightspeed server at the District. In turn, the Lightspeed server references the URL requests with its content database and either allows the request to be processed or sends a blocking and redirect message to the user. In this way Acceptable Use Policies are consistently enforced for users alternately attached to the local network or working remotely. The GMF protects off-network computers from any location, with any type of Internet connection.

*(b) a detailed description of what, if any, issues arose in ensuring that the wireless devices were used only for educational purposes.*

Teachers participating in the Learning-on-the-Go EDU2011 Program attend professional development around classroom management of netbooks and wireless devices. SDUSD utilizes a remote desktop solution for classroom management of netbooks that allows teachers to monitor student activity, limit distractions, and access keystroke histories.

Students participating in the LOGO Program are required to sign a Netbook Loan and Use Agreement that clearly states the expectations for use of District equipment and internet access. Parents and guardians of participating students attended a "LOGO Parent Night" where the expectations for use were reviewed. In addition, all parents were required to sign the Netbook Loan and Use Agreement as part of the LOGO Program.

Students failing to meet the expectations of the Netbook Loan and Use Agreement receive disciplinary action deemed appropriate by their school site and school administrators. School administrators are talking with students that had excessive wireless broadband data usage to better understand how they are using the equipment and the service.

## **LESSONS LEARNED**

*(a) a description of any technical, operational, or administrative problems or issues associated with implementing the project (such as barriers in using the wireless devices or difficulties with the service) and a description of how those issues were addressed or are being addressed*

Schools participating in the Learning-on-the-Go EDU2011 Pilot were selected based on a variety of variables including a history of success involving technology use and integration. However, recent budget constraints caused extensive movement of administrative and instructional staff throughout the entire School District including schools designated as LOGO Program participants. Initially, it was assumed that teachers involved in the LOGO Program would have been in i21 classrooms for two years previously and would have attended the associated trainings including Vision, Promethean Level 1, and Netbooks, and would be versed in a variety of Web 2.0 tools. However, beginning in August 2011, a change in staff appeared inevitable at LOGO Pilot schools and modifications to the professional development plan were made accordingly. Although not all LOGO teachers initially had the same level of training and expertise, the goal was to have all teachers involved rapidly and move forward with the integration of 21<sup>st</sup> Century tools.

Some unusual circumstances in distributing devices to students were not foreseen, including situations relating to homeless students and students in foster care. Creative intervention by the school district and individual school sites allowed all students to participate in the Program.

One of the computer devices used for the LOGO Program had a manufacturing defect in the keyboard. We have worked with all vendors and parties involved to expedite a solution so students are not without a device. We had originally distributed no more than 10 “loaner” computers to each LOGO school site. Due to the keyboard defect more “loaners” had to be distributed.

LOGO students have reported a limited number of connection issues. We continue to monitor connection issues and work with our wireless providers to ensure all students have a similar experience online outside of school.

*(b) a narrative of the lessons learned as a result of the off-premise wireless project (for example, based on what you learned from the project, how would you plan and implement your project differently if you were doing it over again?).*

The rollout of the LOGO Program at SDUSD has not been without challenges, however, it has been fairly seamless due to the amount of prior planning and building on the success of the i21 Initiative. The significance of pre-planning cannot be overly emphasized in a program like Learning-on-the-Go EDU2011. Planning meetings occurred with both administrators, Intro to TSS teachers, and content teachers around processes and procedures and the importance of parent involvement. Many of the procedures were adapted from the 1:1 Pilot Program at Innovation Middle School. Having a model such as Innovation Middle was invaluable and certainly accelerated the sophistication of the program. Additionally, a District allocated resources to support an Educational Technology Resource Teacher who coordinates the LOGO Program on a daily basis and has spearheaded many program activities. Without this liaison between school sites, teachers, and District technical support, problems would not have been foreseen or remedied as quickly.

The importance of having an Intro to Technology Support Services (TSS) class offered at each school for on-site first tier technical support was also invaluable. However, due to master schedule constraints one participating LOGO school could not comply with this requirement which has put strains on their current on-site technical resources.

The importance of uniform district policies and equipment cannot be stressed enough. All school sites comply with the same policies and procedures around Acceptable Use and lost or damaged items. The distribution of uniform equipment for technical support, training purposes, and student use has also been imperative for implementation in the classroom to move forward.