

International School Technology Survey, 2009

Part I: Technology Staffing

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Executive Summary

International schools tend to have high-quality technology departments, especially when compared to similar-sized schools in the United States. Most technology leaders feel that they have adequate staff to handle technical problems, install software, and maintain hardware. The area of staffing with the most pronounced need is technology facilitation: working with teachers to help plan technology integration or provide professional development and training. Small schools (with less than 450 students) are the most in need of increased technology support staffing.

Most schools have a technology leader, often with the job title of Director of Technology or similar. This lead technology decision-maker tends to receive the same salary as a vice principal. They typically report directly to the head of school, and are usually members of the school's administrative team (although in many cases they are not full members of the administrative team, and instead present or consult with the team as needed.)

About one-fifth of international schools have a one-to-one computing program. One-fifth are not planning one. The remaining majority are in some planning stage: evaluating options or pilot-testing the program. Technology leaders of one-to-one schools tend to report higher job satisfaction. Schools that are not planning one-to-one programs are more likely to report that they need additional technology staff.

When compared with similar-sized schools in the United States, international schools tend to have more proactive technology departments and more tech support personnel per student.

Limitations of this Study

Invitations to participate in this survey were sent to 283 people. The survey was promoted via several channels: HeadNet, Technology Director Ning, Twitter, and various email networks. While the response was better than anticipated, there is an inherent bias towards well-connected, internet enabled schools. Small schools without technology departments may not have been part of any of the communication circles that larger, more networked schools are involved in.

Also, this survey was conducted towards the end of the school year (April and May of 2009,) so the busiest technology departments may not have had time to complete it. This may be the reason why those who completed it so frequently reported high job satisfaction, and efficient, proactive tech support departments.

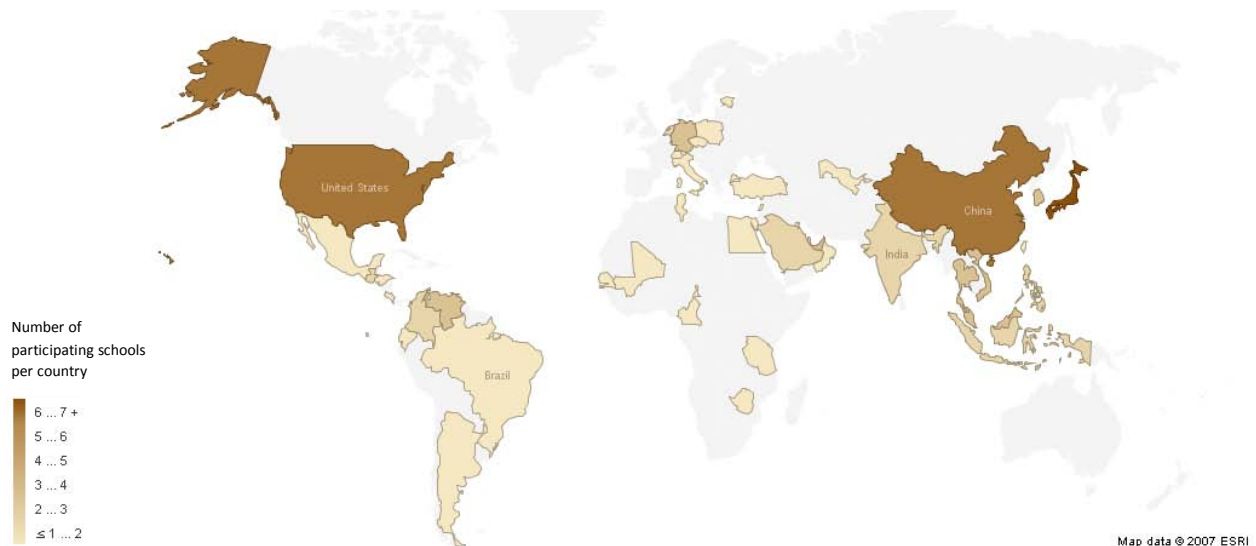
Next Steps

I will be repeating this survey annually – hopefully the number of respondents will increase. Also, we will be able to track changes over time as longitudinal data is collected. Please contact me (warren.apel@gmail.com) if you would like your school to be part of the survey next year.

Be on the lookout for Part II of this report – *Best Practices in Technology Integration*. The information collected in this survey is being released in two parts. The pages included here are focused on staffing. The follow-up report will focus on what schools are doing with hardware, software, teaching, training and professional development.

Location

This survey received 145 valid responses from 97 schools in nearly every region of the world.



Participating in this survey are nine schools in Japan, seven each in the US and China, and six in Hong Kong. There are three participating schools each in Germany, Korea, Malaysia, Thailand, the United Arab Emirates, Venezuela and Viet Nam. Two schools in Colombia, Guatemala, India, Indonesia, the Netherlands, Philippines, Qatar, Saudi Arabia and Singapore responded. In twenty-nine other countries, one school participated.

Type of School

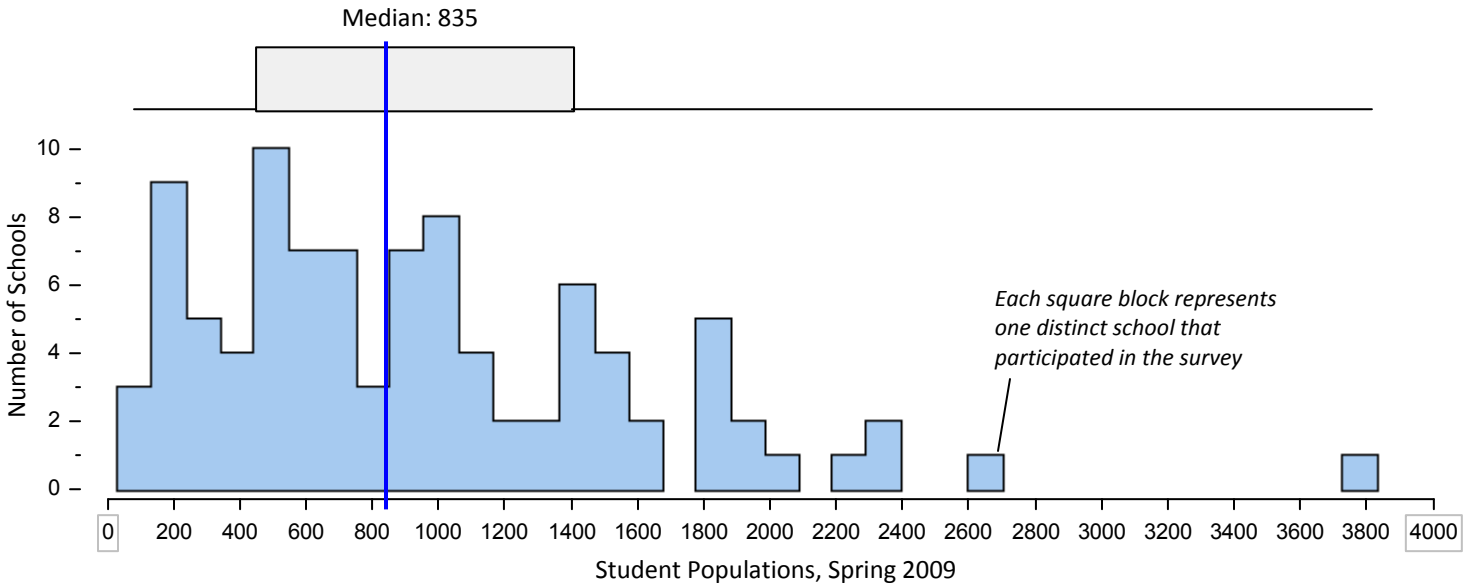
Most (80%) of the schools participating are contained on one campus, with twelve percent divided into multiple campuses based on grade level. Only six percent are divided into multiple campuses located in different cities, and one percent is split into multiple campuses based on location in the same city.

Most (86%) of the participating schools are private, non-profit schools. Eleven percent are private, for-profit schools. Three percent have some other profit status (a corporate school, a non-profit foundation, and a partially-private, partially-public funded school.)

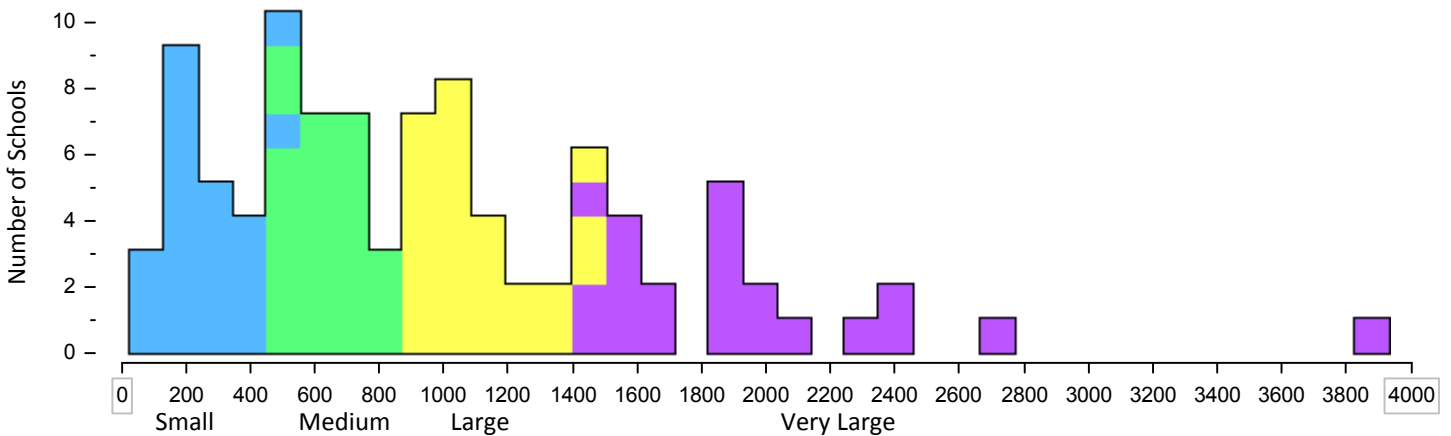
Size of School

The average school participating in this survey has 939 students. The median size is 835. The schools range in size from 80 to over 3,800. The average size is much larger than the median due to the extremely large size of the largest schools.

Distribution of Student Populations Among the 97 Participating Schools



Color-coding by Size of the 97 Participating Schools Four groups, nearly equal-sized (determined by quartile)



This histogram shows size distribution of the 97 participating schools. The school student populations (as of Spring 2009) range from 80 to over 3800. The histogram with box-and-whisker plot above shows the division of populations into equal quartiles. If all 97 schools were divided into four even quartiles, one quarter (we can call them *Small Schools*) would be smaller than 450, the middle half (shown by the grey box) would be between 450 and 1400. This middle box is divided by the median into *Medium Schools* of 450 to 835 and *Large Schools* of 836 to 1399. The quartile with the largest enrollment (*Very Large Schools*) is composed of schools with 1400 to 3800 students.

The long whisker on the right of the box shows that the quartile of largest-sized schools has a much broader range than the smallest. This helps explain why the average size is so much larger than the median.

Color-coding the four quartiles blue, green, yellow, and purple will help in later analyses when we compare the effect of school size on technology and staffing.

This survey will display much of the data using similar data visualizations.

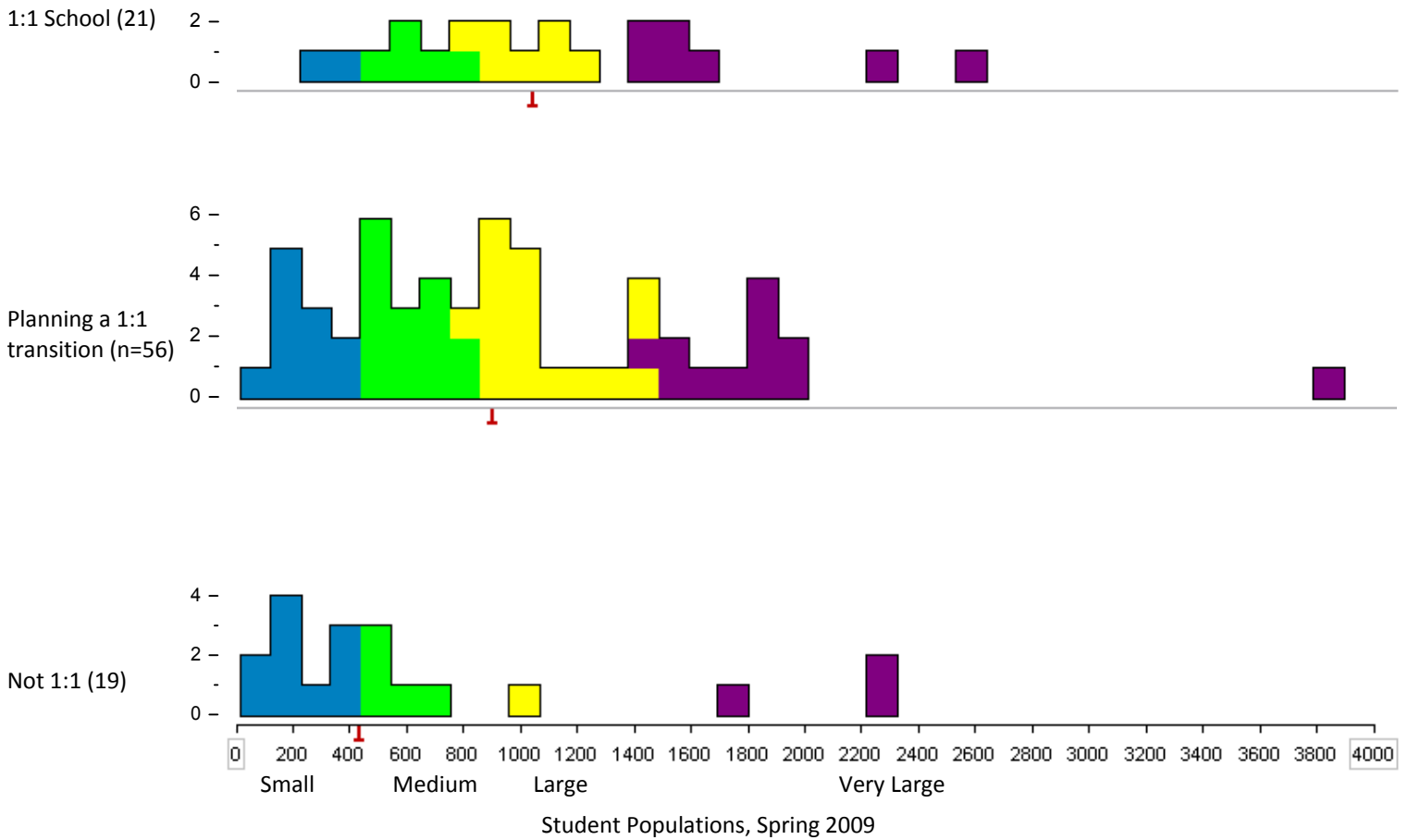
One-to-One Laptop Programs

Twenty-one of the schools taking this survey have a 1:1 computing initiative in place. Nineteen are not planning to go 1:1. Fifty-six are in some evaluation, planning or transition stage. This survey will call those three groups of schools “1:1,” “not 1:1,” and “planning a 1:1 transition.” The graphs and charts will also color-code green, yellow, and red to make them easier to visualize.

Group name	Specific plan	Number of schools (n)	As a percentage of 97 schools (%)
1:1	We have a 1:1 computing initiative in place	18	19%
	1:1 in MS and 3:1 in Lower School	1	1%
	Our 1:1 starts in August 2009	1	1%
Planning a 1:1 transition	We are training our staff in order to plan for a 1:1 initiative	1	1%
	We are in the piloting stage of a 1:1 initiative	12	12%
	We are evaluating possible 1:1 options	41	42%
	Planning for teacher laptops, adding laptop carts for students, longer term 1:?? discussed	1	1%
	We are beginning talking about 1:1 but held back due to no available vendor	1	1%
Not 1:1	We are not planning to go 1:1	21	22%

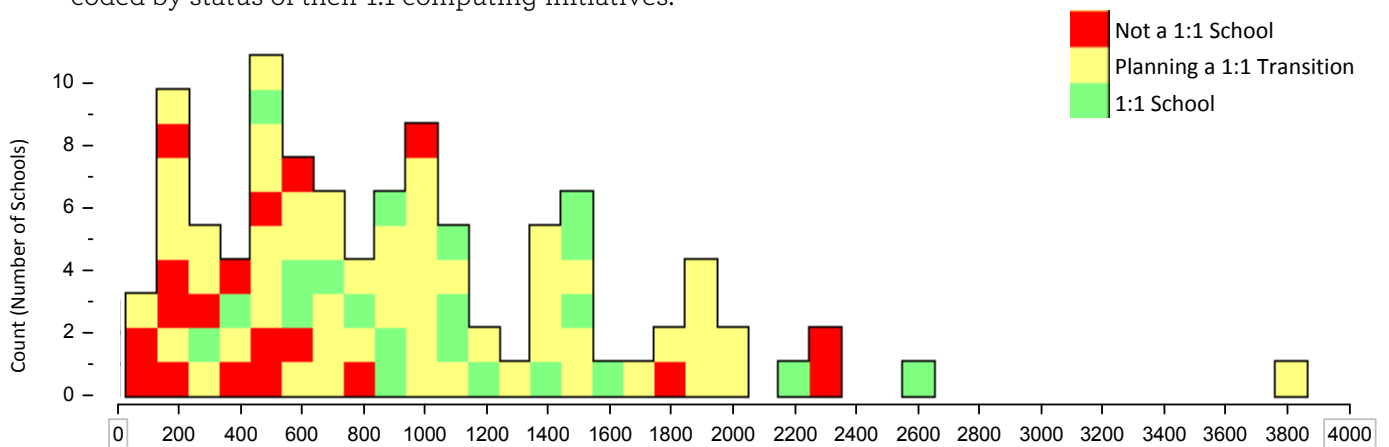
The graphs on the next page will explain the distribution of one-to-one programs in more detail.

Distribution of 1-to-1 Computing Initiatives by Size of School



These histograms show the distribution of 1:1 computing initiatives by size of school. Schools that are not planning a 1:1 program tend to be smaller (median size: 430 students) compared with 1:1 schools (median size: 1040.) The size distribution of schools that are in the planning stages is very similar to the general trends of all schools participating in the survey.

Another way to display this trend (below) is to show all the schools, arranged by size, and color coded by status of their 1:1 computing initiatives.



Who is the Primary Technology Decision-Maker at Your School?

This survey was sent to 283 people involved in education technology at international schools. Each participant was invited specifically with a unique URL – that is, the results were tied to an individual email invitation, not a general shared website address.

The 145 valid responses included network managers, principals, heads of school, teachers and other technology staff. Although most of the respondents are responsible for technology at their school in some way, the actual job descriptions vary considerably – and not all are the primary technology leader. In some schools a “technology coordinator” is a building-level teaching role. At another, the same title refers to the all-school administrative technology leader. We can further analyze the nature of technology leadership at different schools by looking at the job title, the job role, the salary structure, the role of the position in relationship to the administrative team, and the person to whom the technology decision-maker reports.

All 145 participants were asked to give their actual job title, choose the closest job description from a list, and answer the question “are you the Technology Leader (primary technology decision-maker) at your school?”

Seventy-two said that yes, they were the Technology Leader, although several indicated that technology decisions at their school are made by a team. Forty-eight said no. Twenty-five selected the third option on the question: “We don’t have an official technology leader, but I’m the closest thing to it.” Most of the responses considered in this survey will come from the 97 respondents who are either the official technology leader or the closest thing their school has to one. Some questions will include the responses of all 145.

Here are the job roles that participants were asked to choose from. Making this choice helps remove the ambiguity from the various names that are given to each role at different schools.

Technology Leader - The primary technology decision-maker in your organization. Oversees all administrative and information technology systems and applications. Titles could include Chief Technology Officer, IT Director, MIS Director, Superintendent for Technology, etc.

IT Manager/Tech Coordinator - Performs tasks to aid in the ongoing support of teachers and students. Provides hardware and software support to teachers. May be based at a school building level or higher division. Makes decisions for technology at the division level.

Technology Facilitator - Focuses on how staff utilize technology resources and provides on-going professional development to teachers. Helps teachers integrate technology in their lessons. May co-teach some lessons with classroom teachers.

Technician - performs repair and maintenance of all technology-related equipment as well as technical support for technology systems. Support and maintain computers, software, networks, file servers, and workstations.

Technology Teacher or Instructor - Faculty position instructing students in technology skills.

Technology Assistant / Instructional Assistant - Performs tasks to assist in the ongoing support of teachers and students. Provides hardware and software support to teachers. Usually based at a school building level.

Network Administrator - Designs, implements and maintains wide area networks or local area networks in a school environment. Supervises the installation, maintenance, and operation of networks and associated computer hardware and software. Titles might include Network Supervisor or LAN Engineer.

Web Specialist / Programmer - programs or maintains web presence or custom applications.

School Administrator - Primary or secondary leader of the school system. Oversees more than technology-related decisions. Titles could include Superintendent, Head of School, Principal, Assistant Principal, or Headmaster.

Additionally, there were six defined job roles that no participant identified themselves with: Media Specialist, Media Technician, Technology Lab Monitor, Data Manager, Office or Support Staff, and Student Records Specialist.

Of the 36 participants who are not the primary technology decision maker, most are involved with technology at their school in some other capacity. Eleven are IT managers or technology coordinators. Eight are technology facilitators. Two are technology teachers. Only four are school support staff or administrators not involved in technology. One is a member of the technology committee. The other ten are a mix of tech support staff, such as web specialist, programmer, network administrator, or IT operations technicians.

Job Titles of Primary Technology Decision Makers

Of the people who are either the technology leader at their school, or “the closest thing to it,” there are a variety of job titles. Here is a table of the actual job descriptions of both groups, sorted by frequency.

Job Title	Technology Leaders	“The Closest Thing To It”
Director of Technology	23	
IT Director	10	2
Technology Coordinator	8	1
IT Coordinator	5	3
IT Manager	4	2
Director of Information Technology	4	
Technology Director	4	
Director of ICT	2	
ICT Manager	1	1
Administrator in Charge of Technology, Curriculum, and Special Projects	1	
Database Manager	1	
Director of Information Services	1	
Head of Information Technology and E-Learning	1	
Head of Primary School Technology	1	
Head of Technology	1	
ICT Director	1	
IT Kahuna	1	
IT Technical Director	1	
Technology and Information Systems Coordinator	1	
Technology Supervisor	1	

Of those who consider themselves the closest thing to a technology decision maker, nine (*listed above*) have the same titles as the primary technology leader of other schools. The rest are a mix: two administrators (school director and deputy head), two IT technicians or staffers, and twelve whose job title implies some sort of educational technology role, such as “Head of ICT Department,” “Learning Technologies Coordinator,” or “Instructional Technology Specialist.”

It’s possible to see the relationship between job title and job role a bit more clearly by grouping the various titles into some main categories based on a combination of title and role. By combining the more than twenty various job titles, we can distill them down to six: **Director of Technology, Technology Coordinator, IT Manager, Technology Department Head, Technician, and School Administrator.** (The last category includes school administrators with non-technology roles, such as heads of schools who are also responsible for technology decisions. It is understood that many Directors of Technology are also school administrators.)

The Role of the Technology Leader

Of the participants in this survey, 74% report that their school’s technology leader contributes leadership to their school’s administrative team.

Twenty-three percent of the technology leaders report that they are not a part of the administrative team. Three percent report some “other” response, such as “partly,” or “sometimes.”

Of the schools where the tech leader does contribute administrative leadership, 60% of them do so as a full member of the administrative team, while 36% of them do so by presenting or consulting with the administrative team only when needed. Four percent gave no answer.

Another way to learn about the role of a technology leader within their organization is to examine the role of their direct supervisor. In 64% of schools participating in this survey, the technology leader reports directly to the superintendent or head of school. Two percent report to the deputy head. Seven percent report to the business manager, eight percent to a principal, and one percent to a vice principal. In 15% of the schools, the technology leader reports to another technology leader. Many of these are large schools divided over multiple campuses, where the person participating in the survey is the decision maker at their division level, but where there is a technology leader at a district or headquarters above them. This chart shows the relationship of 95 technology leaders and their supervisors. (One of the 97 did not respond to this question, and another one is also the head of school, and has no supervisor.) To simplify titles, we’ll use the six job titles from before.

For Comparison:

According to the National Association of Independent Schools, a principle of good practice is that **the staff member responsible for technology at a school should contribute leadership to the school’s administrative team.** In the 2007 NAIS Technology Survey, only 65% of NAIS member schools follow that principle.

<i>Supervisor:</i>	Superintendent or Deputy Head	Business Manager	Principal or Vice Principal	Technology Leader	Technology Manager or Coordinator
<i>Job Title:</i>					
Director of Technology	36	6	1	4	1
Technology Coordinator	13		5	1	3
IT Manager	7	1	1		1
Dept Head	4		2	3	
Technician	1			1	2
School Administrator	2				

The most common situation is a director of technology (or IT director, or tech director) reporting directly to a superintendent. Technology leaders who report to a principal are more likely to be called technology coordinators.

The Salaries of Technology Leaders

All information on this survey is confidential, and respondents were informed of that. Still, salaries are a sensitive matter, so some participants chose not to share them. The 81 technology leaders who chose to disclose their salaries on this survey reported a median income of \$60,000.

It's also useful to look at what other job roles in their school have similar salaries. This helps more clearly point to how their role is considered, regardless of how much actual money they earn. In general, job roles of "Tech Coordinator" are paid the same as a teacher. Tech "Directors" are more likely to be paid the same as a vice principal or principal.

For Comparison:

According to a recent survey of American technology professionals, education is the lowest-paying sector for IT management. Where median annual salaries (in US dollars) of IT management in the electronics, financial, biotech, or transportation industries might range from \$103,000 to \$125,000, IT management in education earned a median income of only \$77,000, less than both the non-profit and state government sectors

McGee, Marianne Kolbasuk. *IT Salaries: Meager Raises, Solid Prospects*. InformationWeek Analytics, April 2009.

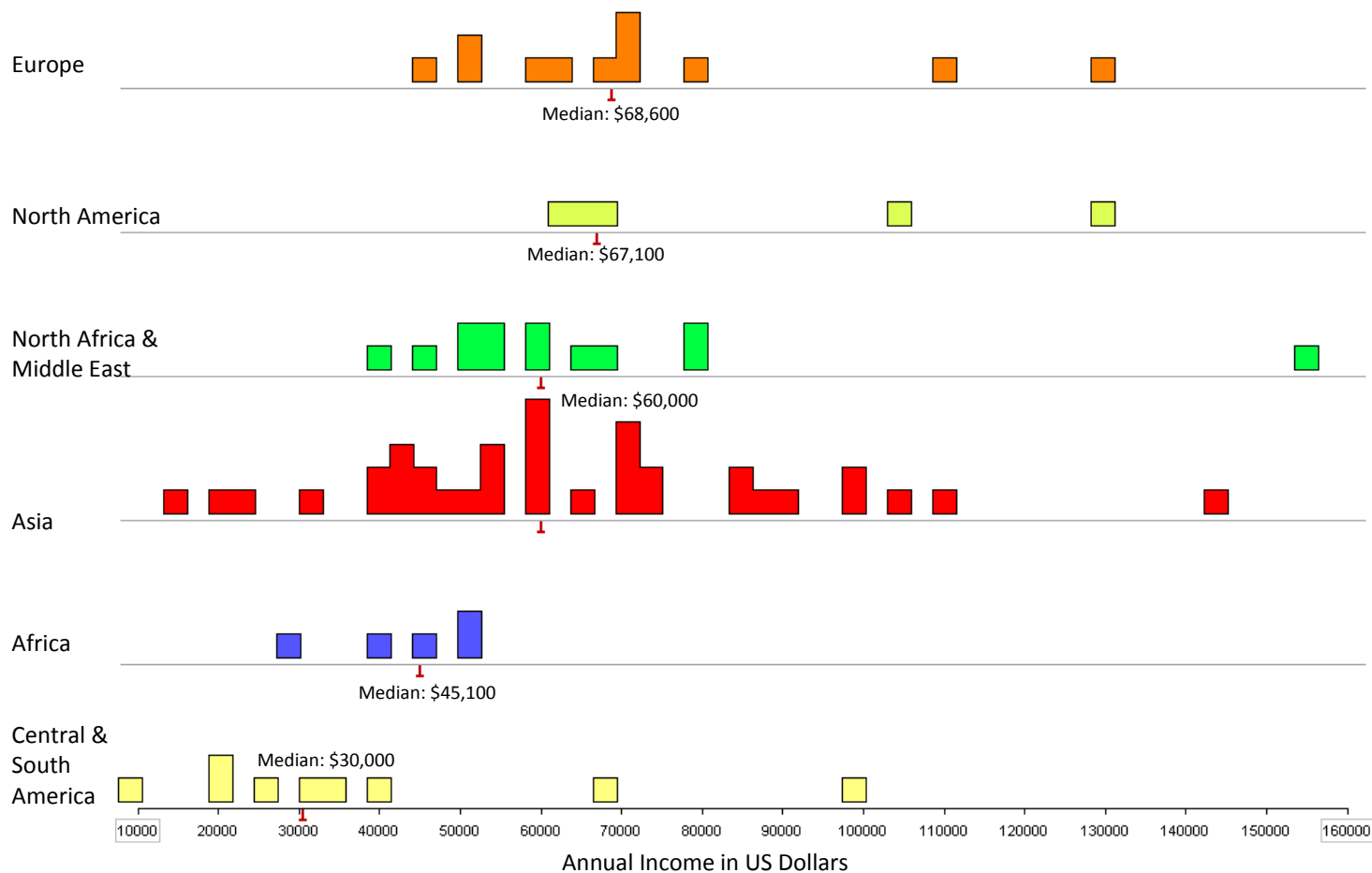
<i>Job Title:</i>	Median Salary: (USD)	<i>Number who are paid the same as a:</i>				
		Head of School	Principal	Vice Principal	Teacher	Less than a teacher
School Administrator	\$104,800	1	1			
Director of Technology	\$67,000		6	18	6	
IT Manager	\$52,200				2	1
Dept Head	\$50,000			1	2	
Technician	\$47,800				2	1
Technology Coordinator	\$47,600			5	9	

The salaries of technology leaders tend to be higher at one-to-one schools than at schools that don't have a one-to-one program. They tend to be highest in Europe and lowest in Africa and South America. This survey did not take into account tax-free status, housing benefits or local cost-of-living, so some comparisons from region to region may be unfair.

Eleven of the respondents (13%) reported earning annual salaries over \$100,000. They are from a variety of regions, at schools of varying size, and from a mix of non-profit, for-profit and corporate schools.

The graphs on the next two pages will explore the relationships between salaries in more detail.

Distribution of Technology Leader Salaries by Region

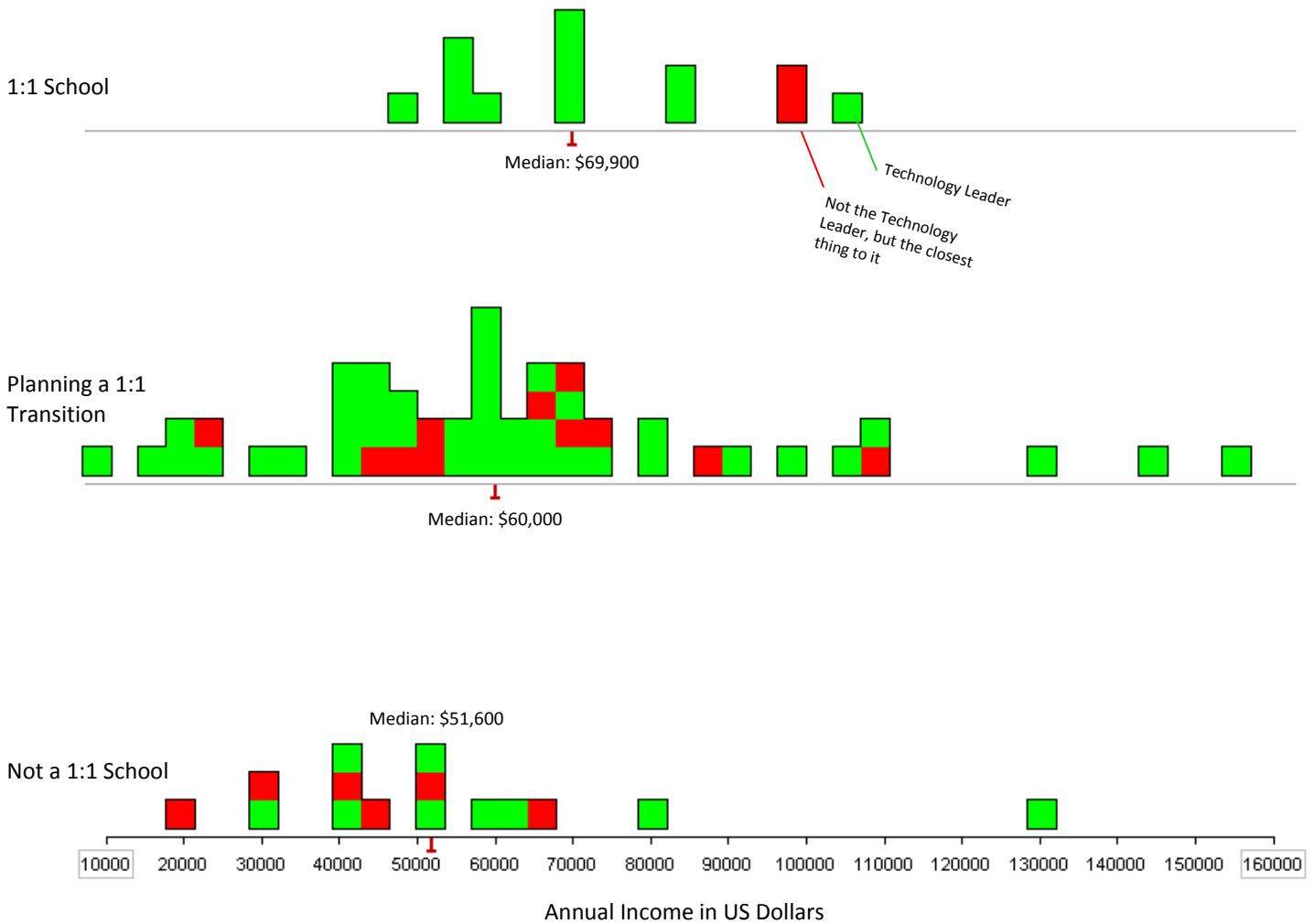


These histograms show the distribution of salaries in the regions represented by this survey. Twelve participants chose not to share their salary. Salaries are self-reported, and may not be accurate. And although the question specified that they should be reported in US dollars, some participants may have mis-read that and reported their salary in their local currency. Four salaries less than \$10,000 were removed as they were most likely either typographical errors, currency conversion issues, or part-time employees.

Also, it's hard to compare "apples to apples" when talking about salary, since there are other benefits such as housing that may or may not be included in this figure. Still, it's interesting to note that Asia and the Middle East, with their reputation for high salaries, have a lower median reported salary than North America. European schools, which don't have the reputation for high salaries that schools in Asia or the Middle East often have, actually seem to pay the most.

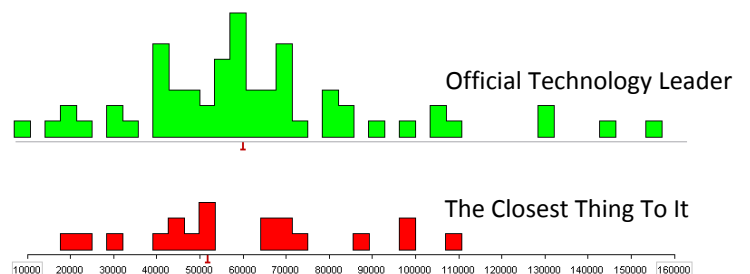
As noted previously, variance in tax-free status, housing benefits, and local cost of living may make comparisons such as this one unfair.

Distribution of Technology Leader Salaries by 1:1 Program Status



These histograms show the distribution of salaries by status of the school’s one-to-one computing initiative. Schools with a 1:1 program in place tend to pay their technology leaders more than schools which do not, or which are planning a 1:1 transition. Schools which have a one-to-one program in place are more likely to have an official technology leader; schools without such a program are more likely to have “the closest thing to it.” These categories are represented by the red or green color coding.

When all types of schools are combined, (right) the difference in median salaries between technology leaders (\$59,800) and “the closest thing to it” (\$51,800) is much less striking—perhaps because so many of the unofficial leaders are heads of school or other administrators.



Job Satisfaction

On the next three pages, you'll see the results from nineteen questions designed to determine both the level of job satisfaction of the technology leader, as well as the level of quality technology integration at participating schools. Some interesting observations emerge from the responses to these questions.

Nearly all agree that they enjoy working at their school (92%), and that they have a passion for technology (97%). Other areas of solid agreement are that the technology team at their school has a passion for technology (84%) and that teachers at their school get fast and efficient tech support (85%). The area with the least agreement is effective professional development on integration of technology, where only 29% of all participants either agreed or strongly agreed. This is in keeping with the high demand for increased staffing in the areas of technology facilitation and integration.

Based on the number of positive (agree and strongly agree) and negative (disagree and strongly disagree) answers, we can determine a "job satisfaction index" for each participating school. The underlying reasons for this score may be the location or type of school, the makeup of the student body or parent community, the relationship of the school board to the school, or the personality of the technology leader. Either way, it's an interesting insight into job satisfaction.

The satisfaction indexes on this survey range from -15 (disagree on nearly every question) to 19 (agree or strongly agree on every question.) The median index value is 11. One-to-one schools tend to have more "agree" answers (median value: 14) than schools planning a 1:1 transition (12). Both are higher than "not 1:1 schools" where the median value is only 5. Salary doesn't seem to be an indicator for job satisfaction: the median index for those making less than \$30,000 is 12.9; those making between \$90,000 and \$120,000 have a lower index with a median of 10.5. By region, Asian and South American schools have a median index of 12. The Middle East (11.5), and Europe (10) are lower. North America (9.4) and Africa (8.5) have the lowest job satisfaction indexes.

People whose job title is Director of Technology (or similar) tend to have higher job satisfaction (12) than those whose title is Department Head (9) or Tech Coordinator (8.5).

Schools where the technology leader contributes to the administrative team have a much higher job satisfaction index (12) than those where they don't (6), although it doesn't seem to matter whether they contribute as a full administrative team member or by consulting where needed: median values for both are 12. When observing by size, small schools have the lowest satisfaction index (8). Very large schools are next (11.5) with medium-sized schools (12) and large schools (13) reporting the most job satisfaction.

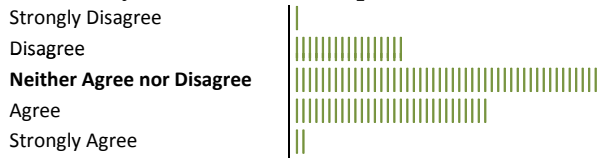
It's possible to do a mathematical correlation analysis of the relationship between each question and the overall job satisfaction index. Without getting into technical details, (email me if you'd like to have more details - it's fun to discuss!) the most interesting result is that the response to the non-tech statement "I enjoy the city I live in" does not seem correlated to overall job satisfaction. The three questions with the strongest correlations are the last three big-picture questions: clear tech goals, a written tech plan, and whether or not the technology leader believes that the school is leading in technology.

I enjoy working at my school.



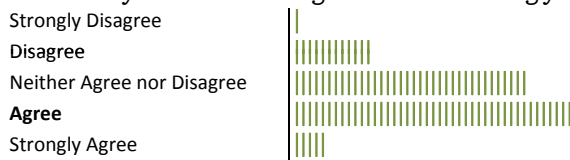
	#	percent
Strongly Disagree	2	2%
Disagree	8	8%
Neither Agree nor Disagree	35	36%
Agree	37	39%
Strongly Agree	14	15%
total responses:	96	

Teachers at my school have a passion for technology.



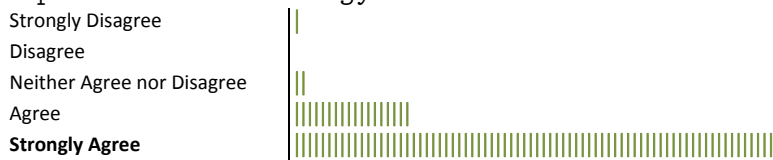
	#	percent
Strongly Disagree	1	1%
Disagree	17	18%
Neither Agree nor Disagree	47	49%
Agree	30	31%
Strongly Agree	2	2%
total responses:	97	

Teachers at my school integrate technology into their lessons.



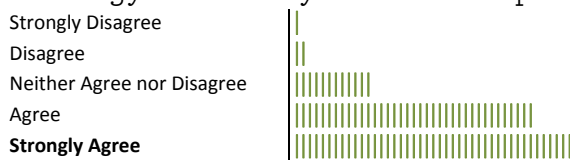
	#	percent
Strongly Disagree	1	1%
Disagree	12	13%
Neither Agree nor Disagree	36	38%
Agree	43	45%
Strongly Agree	5	5%
total responses:	97	

I have a passion for technology.



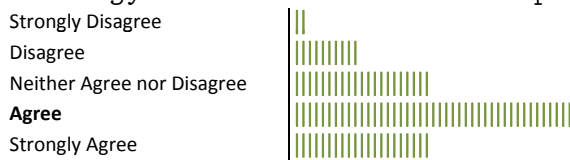
	#	percent
Strongly Disagree	1	1%
Disagree	0	0%
Neither Agree nor Disagree	2	2%
Agree	18	19%
Strongly Agree	75	78%
total responses:	96	

The technology team at my school has a passion for technology.



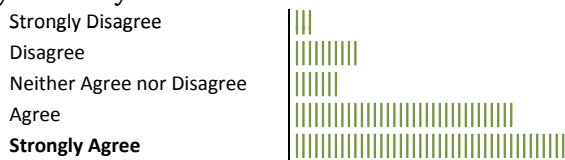
	#	percent
Strongly Disagree	1	1%
Disagree	2	2%
Neither Agree nor Disagree	12	13%
Agree	37	39%
Strongly Agree	43	45%
total responses:	95	

The technology team is familiar with best practices in tech integration.



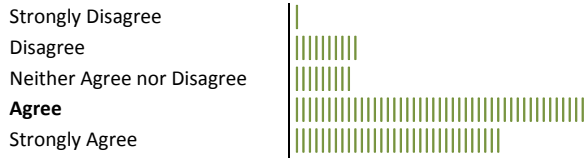
	#	percent
Strongly Disagree	2	2%
Disagree	10	10%
Neither Agree nor Disagree	21	22%
Agree	43	45%
Strongly Agree	21	22%
total responses:	97	

I enjoy the city that I live in.



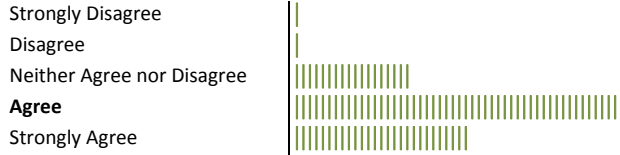
	#	percent
Strongly Disagree	3	3%
Disagree	10	10%
Neither Agree nor Disagree	7	7%
Agree	34	35%
Strongly Agree	42	44%
total responses:	96	

My administration is supportive of my technology goals.



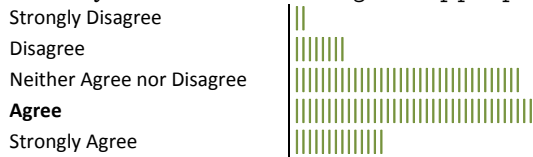
	#	percent
Strongly Disagree	1	1%
Disagree	10	10%
Neither Agree nor Disagree	9	9%
Agree	45	47%
Strongly Agree	32	33%
total responses:	97	

Students at my school are being well prepared for the next grade or school.



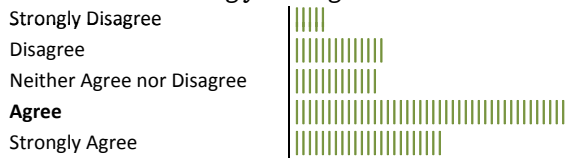
	#	percent
Strongly Disagree	1	1%
Disagree	1	1%
Neither Agree nor Disagree	18	19%
Agree	50	52%
Strongly Agree	27	28%
total responses:	97	

Students at my school are learning the appropriate skills for the 21st century.



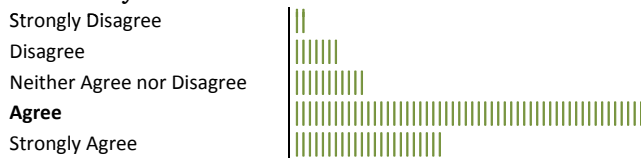
	#	percent
Strongly Disagree	2	2%
Disagree	8	8%
Neither Agree nor Disagree	35	36%
Agree	37	39%
Strongly Agree	14	15%
total responses:	96	

My school's technology budget allows us to accomplish our goals.



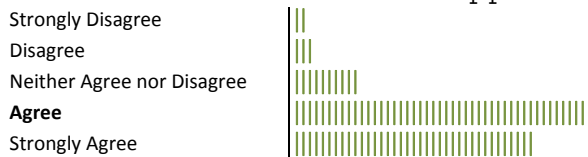
	#	percent
Strongly Disagree	5	5%
Disagree	14	15%
Neither Agree nor Disagree	13	14%
Agree	42	44%
Strongly Agree	23	24%
total responses:	97	

Teachers at my school have access to the hardware they need.



	#	percent
Strongly Disagree	2	2%
Disagree	7	7%
Neither Agree nor Disagree	11	11%
Agree	54	56%
Strongly Agree	23	24%
total responses:	97	

When teachers at my school have a computer problem, they receive fast and efficient tech support.



	#	percent
Strongly Disagree	2	2%
Disagree	3	3%
Neither Agree nor Disagree	10	10%
Agree	45	47%
Strongly Agree	37	39%
total responses:	97	

Teachers at my school receive effective training in the use of technology.



	#	percent
Strongly Disagree	2	2%
Disagree	20	21%
Neither Agree nor Disagree	36	38%
Agree	33	34%
Strongly Agree	6	6%
total responses:	97	

Teachers at my school receive effective professional development on integrating technology in their teaching.



	#	percent
Strongly Disagree	2	2%
Disagree	30	31%
Neither Agree nor Disagree	37	39%
Agree	22	23%
Strongly Agree	6	6%
total responses:	97	

My school is well known as a leader in technology.



	#	percent
Strongly Disagree	5	5%
Disagree	15	16%
Neither Agree nor Disagree	40	42%
Agree	27	28%
Strongly Agree	10	10%
total responses:	97	

I believe my school is a leading school in technology.



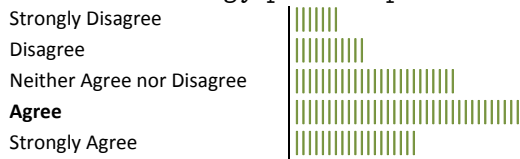
	#	percent
Strongly Disagree	6	6%
Disagree	20	21%
Neither Agree nor Disagree	28	29%
Agree	31	32%
Strongly Agree	12	13%
total responses:	97	

My school has clear technology goals.



	#	percent
Strongly Disagree	2	2%
Disagree	13	14%
Neither Agree nor Disagree	15	16%
Agree	51	53%
Strongly Agree	16	17%
total responses:	97	

Our written technology plan helps us accomplish our goals.



	#	percent
Strongly Disagree	7	7%
Disagree	11	11%
Neither Agree nor Disagree	25	26%
Agree	35	36%
Strongly Agree	19	20%
total responses:	97	

Technology Staffing

Each technology leader was asked to indicate the number of people performing various technology roles at their school. This was a difficult task for many respondents, especially those from small schools where a few people share many roles. Of the 97 participating tech leaders, only 89 completed this section.

Most schools have an IT Manager, a Network Administrator, a Technology Leader, and a Student Records Specialist. Most have one or more Media Specialists, Technology Teachers, or Technicians. Very few have dedicated Media Technicians, Webmasters, Data Managers, or a Technology Secretary; although many have one person who shares several of those roles. By adding up all the various positions at a school, it's possible to obtain a tech-staff-to-student ratio, or a ratio of computers supported per tech staffer, which makes it easier to compare schools.

A typical school participating in this survey has a technology employee for every 40 computers. By region, the ratio of computers per tech staff vary from 54 (Europe) to 28 (Africa). A typical school in this survey also has a *technology employee* for every 80 students, and a *tech support person* for every 300 students. According to the 2007 EDUCAUSE Core Data Service report, institutes of higher education report ratios of 154 students per tech staff member.

Sixty-nine participants in this survey indicated that they needed at least one addition to their tech staff. Here is the breakdown of the answers to this question.

For Comparison:

According to a 2008 survey of public and private K-12 schools in the USA, UK, and Australia, the typical ratio is 600 computers per tech staff members and 220 students per IT employee - far higher than the ratios we see in international schools in this survey.

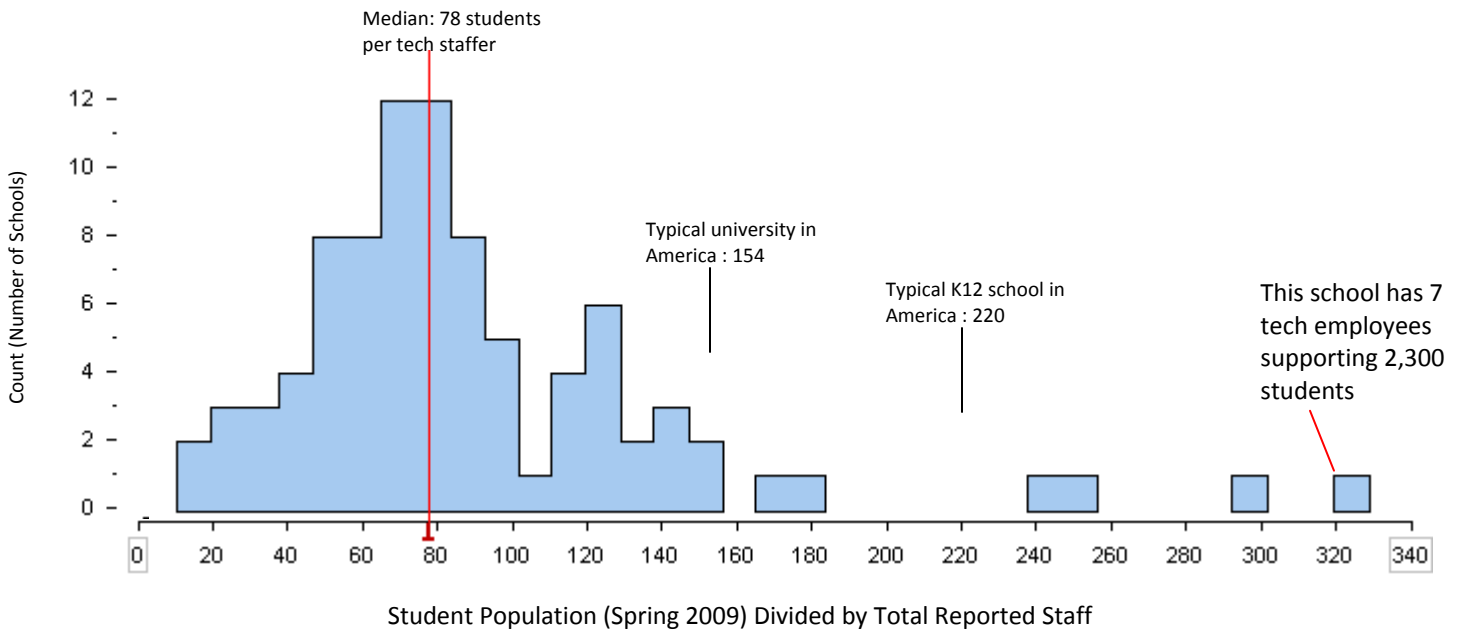
The Unique Challenges Facing the IT Professional in K-12 Education.
eSchool News, March 3, 2009.

Please indicate how many additional Full-time Equivalencies you feel you need in each position:

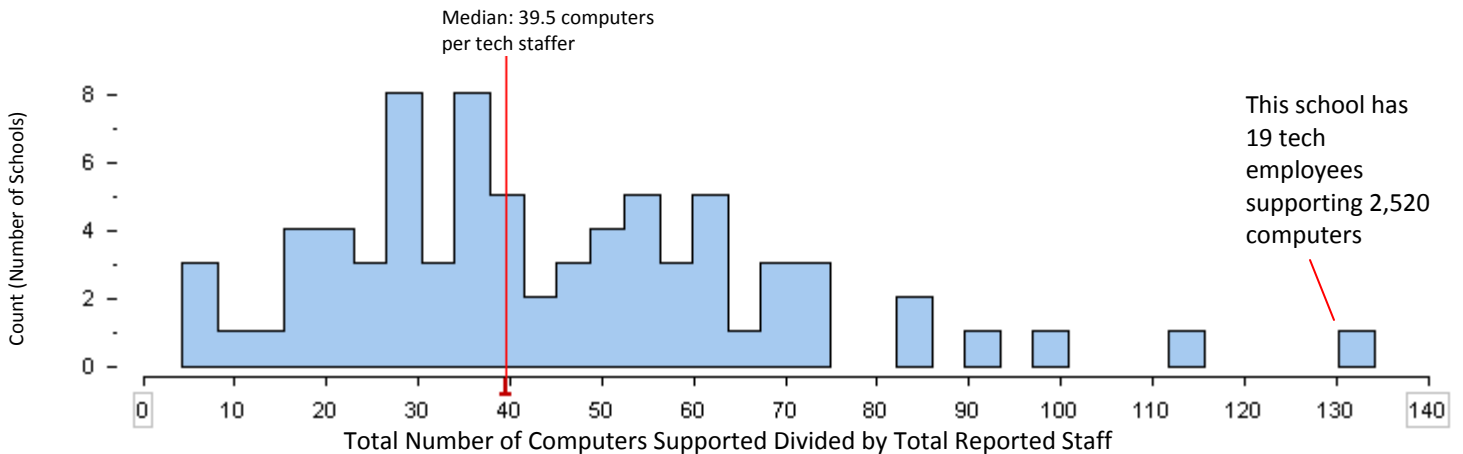
Job Role	Number of Schools Reporting a Need:
Technology Facilitator	30
Technician	24
Webmaster / Programmer	20
Technology Teacher	14
Media Technician	14
Network Administrator	13
Media Specialist / Librarian	12
Technology Instructional Assistant	11
Lab Monitor	11
Student Records Specialist	11
Intern / Helper	11
Data Manager, Psychometrician or Statistician	10
Technology Leader / IT Director	9
IT Manager / Tech Coordinator	9
Office or Support Staff /Tech Secretary	8

This is very similar to the responses given by K-12 schools in the USA, where the most commonly requested positions were “instructional technology staff, technicians, and web specialists.” Three “other” needs were listed: registrar, help desk manager, and e-learning specialist. A typical school technology leader feels three additional technology hires are needed.

Number of Students Per Tech Staff



Number of Computers Per Tech Staff



These histograms show the distribution of relative tech staff size. (Note that the two schools which are pointed out are not the same.) A typical school responding to this survey has a tech employee for every 40 computers and for every 80 students. Data for typical K-12 schools in the US comes from *The Unique Challenge Facing the IT Professional in K-12 Education*, 2008 survey.

Note that these figures include the entire technology department, and not just “tech support staff.”

Technology Staffing Needs Assessment

In a similar manner to the previous job satisfaction questions, participants were asked a series of thirteen questions designed to determine where they needed to add more staff.

The detailed results to each question are presented on the next two pages. But it's interesting to note that overall, the results were similar to those seen in the American survey noted in the sidebar to the right. Among our participants, the biggest need is in training end users on technology skills and integrating technology into the curriculum. For all the rest of the areas; installing software and maintaining computers, for example, more than half of all participants agree that they have enough IT staff to get the job done.

Similarly to the job satisfaction index, we can create a tech staffing needs index based on the 87 responses to these thirteen questions. Actual scores range from -13 (do not have enough tech staff to accomplish any of the tasks asked about) to +13 (have enough IT staff for each task,) with a median of 9.

One-to-one schools are more likely to report having enough IT staff (median score: 10.9), while schools planning a 1:1 transition have more need of IT staff (median score 8.9). Schools that are not planning a 1:1 program have a strong perceived need for increased IT staff – they have a median score of -0.5. It's hard to know which effect is causal – are they not planning to go one-to-one because they have a lack of tech support? Or do they have a lack of tech support because they don't have enough of an investment in computer hardware to justify it?

Small schools have a negative staffing index score (-4). Very large schools have better IT staffing situations (8), while large (9) and medium-sized schools (11) have the highest staffing index scores. This is similar to the findings from the question on the previous page about how many additional staff a school feels it needs. The median number of additional staff required is 4 at small schools, 3 at medium schools, only 2 at large schools, and 5.5 at very large schools.

Regionally, schools in South America, Europe, and Asia seem to have enough IT staff (9), as does the Middle East (8), while North America (2.5) and Africa (0) struggle more with having enough IT staff to support their needs.

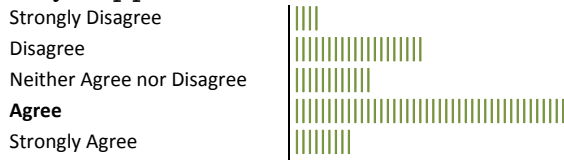
For Comparison:

According to a 2008 survey of American IT professionals, the areas where schools do not have enough IT staff are **integrating technology, implementing new technology, and supporting the needs of the school or district**. More than half felt they had enough staff to maintain IT applications and network systems, and to install IT applications.

The Unique Challenges Facing the IT Professional in K-12 Education. eSchool News, March 3, 2009.

Size of school	Total number of people (Full-time equivalents) employed in a technology role (median response per group)	Number of additional FTE required (median response per group)	Staffing Needs Index (number of "agree" answers minus number of "disagree" on 13 staffing needs questions)
Very Large	21	5.5	8
Large	13.5	2	9
Medium	7.5	3	11
Small	4	4	-4

Overall, I have enough IT staff to
Effectively support the needs of the school.



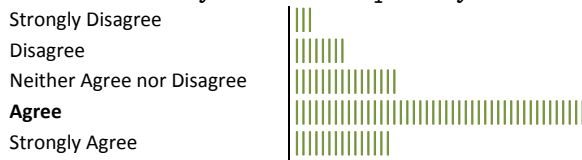
	#	percent
Strongly Disagree	4	5%
Disagree	20	23%
Neither Agree nor Disagree	12	14%
Agree	42	48%
Strongly Agree	9	10%
total responses:	87	

Meet my department's yearly objectives.



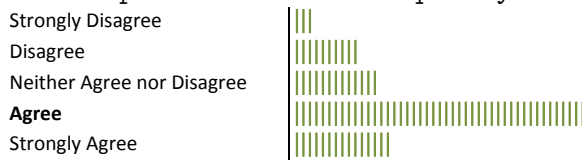
	#	percent
Strongly Disagree	4	5%
Disagree	12	14%
Neither Agree nor Disagree	14	16%
Agree	48	55%
Strongly Agree	9	10%
total responses:	87	

Maintain network systems adequately.



	#	percent
Strongly Disagree	3	3%
Disagree	8	9%
Neither Agree nor Disagree	16	18%
Agree	45	52%
Strongly Agree	15	17%
total responses:	87	

Maintain computer hardware adequately.



	#	percent
Strongly Disagree	3	3%
Disagree	10	11%
Neither Agree nor Disagree	13	15%
Agree	45	52%
Strongly Agree	15	17%
total responses:	86	

Install IT applications.



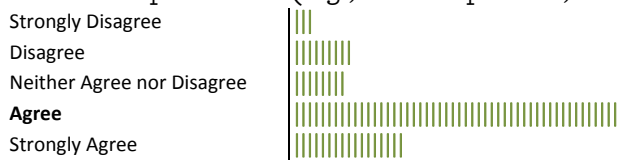
	#	percent
Strongly Disagree	3	3%
Disagree	5	6%
Neither Agree nor Disagree	12	14%
Agree	54	62%
Strongly Agree	13	15%
total responses:	87	

Maintain IT applications.



	#	percent
Strongly Disagree	4	5%
Disagree	6	7%
Neither Agree nor Disagree	9	10%
Agree	55	63%
Strongly Agree	13	15%
total responses:	87	

Keep software up-to-date (e.g., virus updates, OS updates)



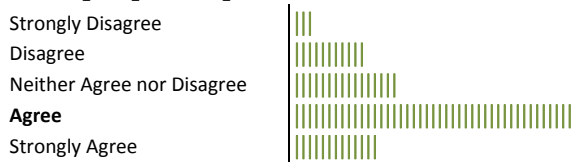
	#	percent
Strongly Disagree	3	3%
Disagree	9	10%
Neither Agree nor Disagree	8	9%
Agree	50	57%
Strongly Agree	17	20%
total responses:	87	

Maintain desktop computers.



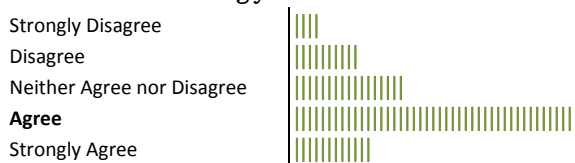
	#	percent
Strongly Disagree	3	3%
Disagree	11	13%
Neither Agree nor Disagree	8	9%
Agree	49	56%
Strongly Agree	16	18%
total responses:	87	

Maintain laptop computers.



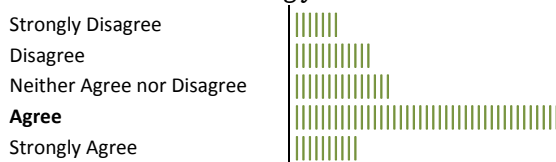
	#	percent
Strongly Disagree	3	3%
Disagree	11	13%
Neither Agree nor Disagree	16	18%
Agree	44	51%
Strongly Agree	13	15%
total responses:	87	

Plan for new technology.



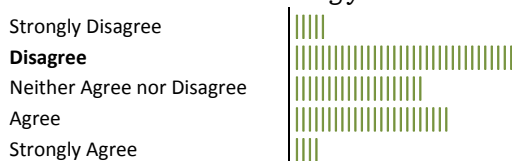
	#	percent
Strongly Disagree	4	5%
Disagree	10	11%
Neither Agree nor Disagree	17	20%
Agree	44	51%
Strongly Agree	12	14%
total responses:	87	

Implement new technology.



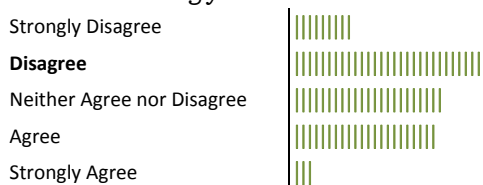
	#	percent
Strongly Disagree	7	8%
Disagree	12	14%
Neither Agree nor Disagree	15	17%
Agree	41	47%
Strongly Agree	10	11%
total responses:	85	

Train end users on technology skills.



	#	percent
Strongly Disagree	5	6%
Disagree	34	39%
Neither Agree nor Disagree	20	23%
Agree	24	28%
Strongly Agree	4	5%
total responses:	87	

Integrate technology into the curriculum.



	#	percent
Strongly Disagree	9	10%
Disagree	29	33%
Neither Agree nor Disagree	23	26%
Agree	22	25%
Strongly Agree	3	3%
total responses:	86	

Student to Tech Staff Ratios

Support staff ratios tend to be higher in international schools than in comparable American schools.

<i>Average (Mean)</i> <i>Number of students per staff</i>	US Schools			International Schools		
	Less than 500 students	500-999 students	1000-2999 students	Less than 500 students	500-999 students	1000-2999 students
Students per Technology Leader	502	1,320	2,207	438	915	1496
(n=)	57	70	94	20	24	29
Students per IT Manager / Tech Coordinator	601	1,551	1,943	764	939	1584
(n=)	43	50	44	20	17	14
Students per Instructional Technology	1,850	1,442	2,069	336	411	356
(n=)	43	50	69	24	25	29
Students per Media Specialist	656	922	1,493	323	502	610
(n=)	28	35	41	26	24	30
Students per Technician	714	1,185	1,519	487	500	616
(n=)	47	56	88	24	21	31
Students per Technology Assistant	488	1,689	2,462	474	790	858
(n=)	27	32	44	9	13	19
Students per Tech Support*	434	641	912	302	285	316
(n=)	57	66	98	25	25	31

***Tech Support** is defined as a combination of Technicians, Network Administrators, LAN Engineers, WAN Engineers, and Technical or Technology assistants.

A Note on the Comparison:

It's hard to compare the results of two different surveys. For example, the American survey defined the term "instructional technology" as "focuses on how staff utilizes the technology resources available in and out of the classroom and provides on-going professional development to teachers." This international survey defines technology facilitator as "Focuses on how staff utilize technology resources and provides on-going professional development to teachers. Helps teachers integrate technology in their lessons. May co-teach some lessons with classroom teachers." For the above table, the international school instructional technology category is a combination of tech facilitators and technology instructor or teacher. This may help explain why the ratio seems so much better in international schools than in those reported by the American survey. Also, schools which do not have a person in that role can't be included in the above table, since the ratio is undefined. For example, only 9 small international schools have any technology assistants, so the ratio appears better than it probably is in reality. At those nine schools, an average of 474 students are served by

each assistant. At the other fifteen or so schools reporting on this section of the survey, none of the less than 500 students are served by any assistant at all.

This combination of factors makes direct comparison difficult. However, some general trends do emerge.

Larger schools have more students per technology leader. This is probably because most schools – even very large ones – have only one technology leader.

School size has little impact on the ratio of students to technology teachers. Schools tend to keep student-to-teacher ratios consistent.

International schools tend to have better students-per-technician and student-per-tech-support ratios. In many international schools, locally hired technicians are more affordable than they are in US school districts.

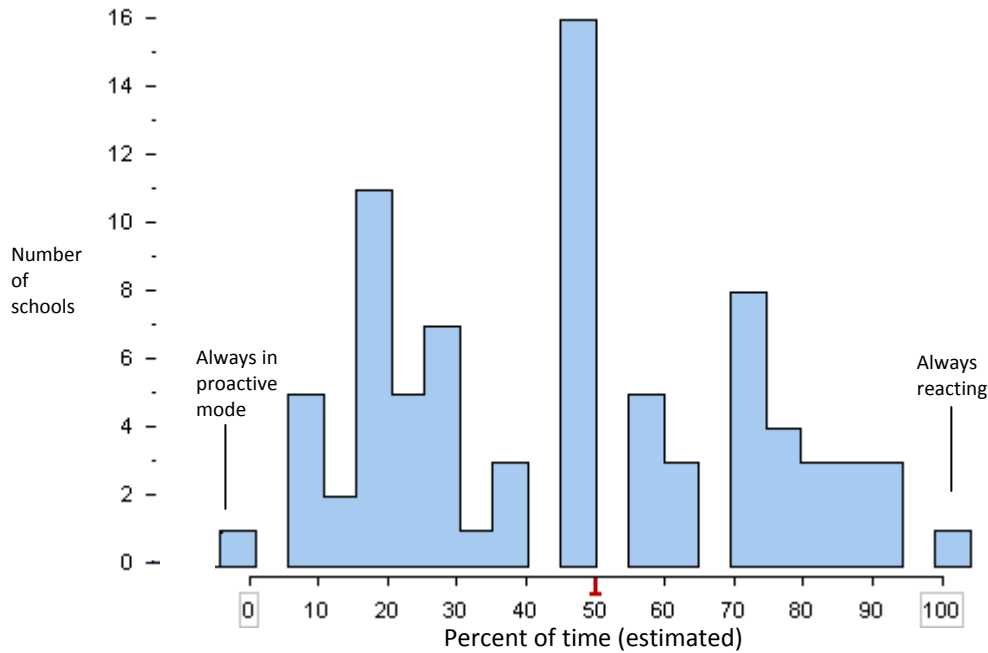
The difference between international schools and US-based schools is more pronounced among the largest. As we have seen elsewhere in this survey, small schools tend to suffer most from understaffing in the technology department. Looking at tech support ratios, for example, small international schools have more support personnel per student than similar-sized schools in America (302 students being served by each tech support person, compared to 434 in the US.) This difference is much larger in schools with higher enrollment: 316 internationally, compared to 912 in the US.

Proactive or Reactive Technology Departments?

Eighty-one of the technology leaders gave an answer to “What percentage of your department’s workload is spent reacting to technical problems (as opposed to working in a proactive mode)?” Answers ranged from 1% to 100%, with the median at 50%.

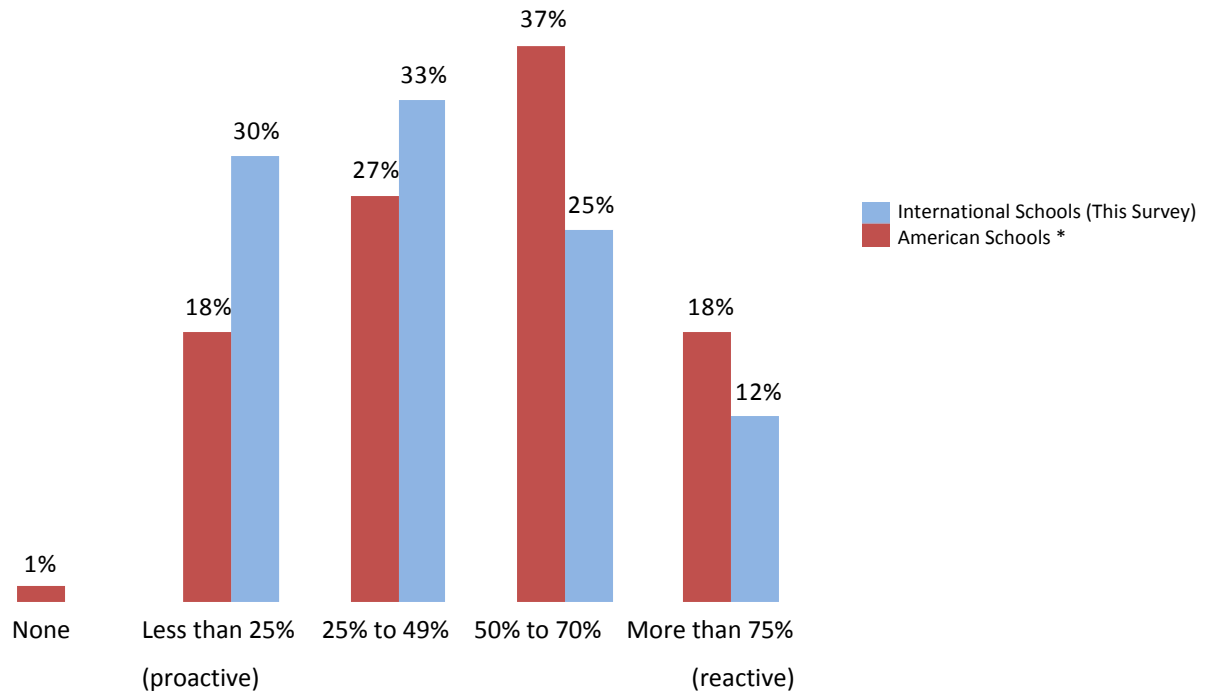
When compared to American schools (see graphs on the following page) fewer international schools than American schools work in reactive or very reactive modes. More tend to be proactive. Given the rapid pace of change in technology, working in proactive mode allows technology departments to plan ahead for new technology and to implement new ideas and strategies. Departments which spend the majority of their time reacting to technical problems are less likely to have time available for innovation.

Percent of Time Spent Reacting to Technical Problems
(International Schools Responding to This Survey)



Percent of Time Spent Reacting to Technical Problems
(Cross-Survey Comparison)

Note: One international school responded that they spend "1%" of their time in reactive mode. In order to fit that school into this comparison graph, they are in the "less than 25%" category, since they didn't actually respond "zero" or "none." If we included them as None, the blue bar would read 1.2% for that category.



*Data for K-12 schools in the US comes from *The Unique Challenge Facing the IT Professional in K-12 Education*, 2008 survey.

Eighty-one international schools responded to this question on the survey.

A note on the technology used

I conducted this survey with ZipSurvey (www.zipsurvey.com), a full-featured powerful survey tool. I analyzed the data with a combination of Microsoft Excel 2007 and TinkerPlots from Key Curriculum Press (www.keypress.com). The job satisfaction and staffing needs histogram visualizations on pages 16-19 and 21-22 were created in Excel 2007. The colored histograms on pages 4, 6, 12, 13, 19, and 25 were created in TinkerPlots, then annotated in Microsoft Publisher 2007. The geographic location choropleth map on page 3 was created with ManyEyes (manyeyes.alphaworks.ibm.com). The PDF files were created with Adobe Acrobat 9.0 Professional.

For further reading

I consulted a number of excellent surveys and reports for comparisons between our data set and similar ones in American public schools. For further reading, I highly recommend:

2007 NAIS Technology Survey, National Association of Independent Schools. June 2007

The Unique Challenges Facing the IT Professional in K-12 Education, eSchool News. March 3, 2009

McGee, Marianne Kolbasuk. *IT Salaries: Meager Raises, Solid Prospects*. InformationWeek Analytics, April 2009

How does your school fit into this data set?

I'd love to have quotes and real-world examples for the next report in this series. Since I was trying to keep the information anonymous as much as possible, I didn't point out very many actual instances of schools. But if you'd like to share your school's story, it will help me paint a more real-world picture of the technology departments at international schools. Send me an email and let's get the conversation started! warren.apel@gmail.com or @WarrenA on twitter. Or post to techdirector.ning.com. And stay tuned for Part II!