Toward 21st Century Educational Leadership: Profile of K-12 Public Education in Puerto Rico

Part I: Infrastructure

Profile of the Puerto Rico Public Education System

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A Report on the State of Education in Puerto Rico
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INTRODUCTION & PURPOSE

The future of Puerto Rico and its capacity to participate and compete in the global economy of the 21st century lie in its ability to provide an effective and relevant education for its youth. In March 2008, the Senate of Puerto Rico solicited proposals for a study of the current status of its K-12 public education system. A primary need for the study, as cited by the Senate, is based on the current lack of available system-wide data to understand the condition of education and educational infrastructures necessary to make evidence-based decisions to improve education. CRH Consulting Ltd. (CRH) of Jamestown, RI was selected to conduct the study in April 2008, and a team of over 40 field assistants completed the school-level data collection from May-October 2008.

The purpose of this report is to describe the methodology and findings of the first phase of this study, the school profile survey. The survey was designed to provide baseline information about school capacity to prepare students for the 21st century in two areas – teaching and learning, and resources and support systems. The second phase of the study, focused on identifying factors associated with high and low performing schools, is described in a separate report entitled: Toward 21st Century Educational Leadership: Profile of K-12 Public Education in Puerto Rico. Part II Performance.

Study Framework – AdvancED Accreditation Standards for Quality Schools

The study utilizes the AdvancED accreditation standards (available at http://www.advanc-ed.org/accreditation/standards/advanced_school_standards.pdf) as a framework to identify broad needs and areas for improvement (Phase I), and factors associated with high and low performing schools (Phase II).

AdvancED is the world's largest education community, representing over 23,000 public and private schools and districts in 30 states and 65 countries and serving over 15 million students. Two regional accreditation organizations; North Central Association Commission on Accreditation and School Improvement (NCA CASI) and the Southern Association of Colleges and Schools Council on Accreditation and School Improvement (SACS CASI) developed the AdvancED *Accreditation Standards For Quality Schools* with research support from the National Study of School Evaluation (NSSE). The standards build on those of both associations, are research-based, and were developed with broad input from practitioners and education experts.

The seven standards address the following areas:

1. Vision and Purpose
2. Governance and Leadership
3. Teaching and Learning
4. Documenting and Using Results
5. Resources and Support Systems
6. Stakeholder Communications and Relationships
7. Commitment to Continuous Improvement

Specifically, Phase I of the study of the Puerto Rico public education system focuses on indicators related to standards 3 (teaching and learning) and 5 (resources and support systems).

Study Context – Puerto Rico Compared to States of Interest

Frequently, Puerto Rico compares itself to the states of Kentucky, Mississippi, and Oregon based on similar state budgets and population size.

In general, direct comparisons of school data between states and school districts should be viewed in a very tentative manner since these comparisons encompass a wide variety of variables that cannot be held constant.

A review of the data collected by the National Center for Education Statistics (NCES) in the Common Core of Data (CCD) for Kentucky, Mississippi, Oregon and Puerto Rico contains some interesting comparisons that certainly indicate that additional study needs to be completed. These data are from school year 2005 – 2006 and is included in the appendices of this report (see Appendix A).

Even though the student enrollment in these four jurisdictions is comparable, the data for Puerto Rico is vastly different in several areas:

- The number of pre-kindergarten students is significantly less in Puerto Rico than the other states.

- The number of un-graded students in Puerto Rico is significantly higher than in the other states.

- The pupil teacher ratio in Puerto Rico is lower and presumably better than the other states.

- The number of instructional aides is much lower in Puerto Rico than in the other states.

- The total revenues supporting each student are significantly lower in Puerto Rico than in the other states. The federal share is higher, while the state share is lower and the local share is zero.

- While the total for instructional salaries is comparable to the other states, the total for benefits is significantly lower.

- The student population living in poverty is significantly higher than the other states and makes up over 80% of the entire student population.

The Department of Defense Educational Activity (DODEA) currently operates five schools in Puerto Rico - Antilles ES, Antilles IS, Antilles MS, Antilles HS, and Ramey Unit School.   Roosevelt Roads ES and Roosevelt Roads M/HS are currently closed, but were operated through school year 2004.

These schools all participate in the accreditation process and conduct comprehensive school improvement activities. With the exception of connections to the U.S. Military forces, many of the students who attend these schools have much in common with the students of Puerto Rico in terms of cultural background and mobility.

Student assessments on the Terra Nova indicated that these students score above the sixtieth percentile in reading, language arts, math and science. The 2008 SAT scores for the students in these schools were 478 in critical reading/vocabulary, 458 in math and 461 in writing.

It would seem that further study comparing the results of the DODEA students to the higher performing schools in Puerto Rico might point out some directions that could be implemented throughout Puerto Rico to improve educational achievement.

STUDY METHODS

The data sources for Phase I include a survey of school representatives and specific data provided by the Puerto Rico Department of Education (DEPR) from its databases.

"Estudio Sobre el Estado de la Educación en Puerto Rico"

The survey of school representatives, "Estudio Sobre el Estado de la Educación en Puerto Rico", was designed by CRH in consultation with the Puerto Rico Senate to include the variables specified in the Request for Proposals for this project. The survey includes 117 questions in 18 different sections. Table 1 displays a blueprint of the major sections of the survey, the number of questions, and the type of information solicited. The entire survey instrument is provided in Appendix B.

The CRH Project Manager and Project Assistant hired and trained over 40 local educators to conduct data collection at the school sites. These field assistants were trained to be assertive and convince school directors of the importance of participating in the interview. Each field assistant was assigned a set of 30-40 schools. While the initial intent was to complete visits by the end of June 2008, the time to complete the visits was extended to October 9, 2008 to incorporate as many schools as possible.

School directors received a letter from the Puerto Rico Department of Education (DEPR) explaining the purpose of the study and noting the voluntary nature of participation (see Appendix D). Field assistants conducted survey interviews with the school directors or other school representatives using the paper-based survey instrument. In the case that the entire interview could not be completed due to lack of availability of some of the information, field assistants arranged a follow-up visit to complete the interview. Most field assistants had to visit a school more than once, and in some cases, more than three times. Sometimes the school directors confirmed appointments for a time and were not there, or had situations in the school and were not able to meet the field assistants.

To facilitate data entry, an electronic version of the survey was developed using the online survey provider Zoomerang (see Appendix C). Field assistants were provided with an identifying code and the web address for survey entry. The assistants entered the survey responses for each school into the electronic survey forms. The CRH database specialist exported the raw data from the Zoomerang site on a daily basis as an Excel file and reviewed this file weekly to provide updates on survey completion and to

identify any data entry problems or errors. A raw data file for the entire survey is provided in Electronic Appendix B, along with a file sorted by survey section, provided in Electronic Appendix C.

Details on the sample of participating schools and interviewees are provided in Section 5 (Participating Schools, Response Rate, and Data Quality).

Puerto Rico Department of Education (DEPR) Data Files

The Phase I study was designed to take advantage of all existing data sources on Puerto Rico schools. Based on information provided in the Senate's Request for Proposals indicating the availability of data from the Puerto Rico Department of Education (DEPR), CRH submitted a request to the DEPR for data on student enrollment and student achievement, teacher numbers and credentials, staff numbers, and course offerings by grade and academic subject area contained in its data warehouse. Unfortunately, while CRH provided Excel templates for the necessary data (see Electronic Appendix A) and made repeated requests, most of these data were not received. The lack of these data represents a serious limitation of the study, particularly when seen in conjunction with the lack of response to some sections of the survey.

CRH received four different data files from the DEPR and these are merged into a single electronic appendix to the report (Electronic Appendix D). The file includes a tab with the most recent school directory for Puerto Rico (April 2008), which provides basic information about each school including school name, address and phone, level, grades offered, and location (rural/urban). In a separate tab, the results from the 2005-06 and 2006-07 "Pruebas Puertorriqueñas de Aprovechamiento Académico" (PPAA) in terms of percentage of students achieving proficient or advanced scores in three subjects – Spanish, mathematics, and English – are provided for each school, along with the number of years in school improvement as of October 2007. In a third tab, the 2007-08 official enrollment figures and percentage of students below poverty level for each school are also provided. Most of these fields have been merged into the survey results file to provide missing data and to facilitate data analysis.

Participating Schools and Response Rate

The study was designed to approximate a census of all Puerto Rico public schools. A total of 1,460 schools participated in the survey. See Appendix E for the entire list of schools by educational region and district. The total number of schools listed in the most recent DEPR directory is 1,532,

suggesting an approximate response rate of 95%. Table 2 provides the number of participating schools by school level, along with approximate response rate.

The participation rates for four school types – intermedio, superior, ps-instituto, and ps-otros – are over 100%. These figures reflect possible errors of classification by the school or by DEPR, as well as schools that were not included in the DEPR directory (approximately 11 schools according to field assistant records). Some were found when visiting other schools, while others were identified in a directory obtained in August 2008.

Field assistants conducted most of the survey interviews with school directors (80%). If a director was unable to participate in the interview, the most common designated school representatives were secretaries and administrative assistants (14%) and teachers (3%). Some of the more common reasons cited by the field assistants for director's lack of participation:

- Finishing the 2007-08 school year, preparing end of year reports, or initial planning documents required by the DEPR
- Participating in residential seminars required by the DEPR
- Did not know the conditions of the school (new hires)
- Did not want to do the inventory due to poor record keeping and data management
- On vacation
- Did not have time and did not want to delegate to others
- Attending district or DEPR meetings
- Scared of the legal consequences of providing the information
- Apathy about data collection efforts (surveys end in nothing, will not do anything with information – "it is all political")
- Cited that the letter sent by the DEPR indicated the interview was voluntary, and they did not want to participate

Additionally, some of the school visits re-scheduled for Patillas, Arroyo, and Yabucoa were hampered by the tropical storm during the week of September 22, 2008.

Note on Survey Questions with Insufficient Data

While the overall response rate to the survey was excellent, response rates to particular sections and questions were varied. Many of the completed interviews had missing data because school directors did not have easy access to the information. The best data were provided by school directors who had well-organized information or support staff (clerical, administrative) who

knew and had access to that information. In particular, low response rates and/or data precision issues were noted on questions in the following areas, all of which include figures that are officially reported:

Student enrollment numbers

School representatives were asked to provide enrollment figures for 2006-07 and 2007-08. About half of the schools did not provide figures for 2006-07 for enrollment. School officials cited lack of access to these data as they had previously been submitted to the DEPR but were not accessible. The overall low response rate puts the accuracy of the reported data in question. These data were requested from the DEPR as part of the project, but were not provided.

Response rates for the 2007-08 official enrollment data were significantly better (over 90%), but given that we had received the 2007-08 M1 enrollment numbers by school by the DEPR, we used these figures to represent the official reported numbers. We recommend that the official data on all enrollment figures be obtained from the DEPR SchoolMax database to ensure the consistency of reporting of these figures.

Graduation rates

Schools were asked to report number of graduates for the 2006-07 academic year, as well as approximate 3-year, 4-year and 5-year graduation rates (percent graduating from high school within 3, 4, and 5 years of entering grade 10). Only 25% of secondary and high schools reported numbers of graduating students, and over 87% did not respond to the questions on estimated graduation rates. These low response rates indicate that school directors and personnel are not aware of or do not have access to these data, and suggest that any reported data are unreliable.

Data on students with disabilities

 Schools were asked to provide data on current numbers of students with disabilities, along with numbers of students with disabilities by grade level, disability type, and instructional setting. Most schools provided a total number of students with disabilities (85%), however, the response rate to the questions by grade level, disability type, and instructional setting were much lower. During the interviews, many schools indicated that they had already submitted this information and did not have access to it. These figures should be obtained from the DEPR to ensure the most consistent representation of numbers of special education students in Puerto Rico

FINDINGS

The results of Phase I are organized into five subsections: DEPR School Profile, Instructional and Support Personnel Profile, Student Profile, Teaching and Learning, and Resources and Supports.

We have prepared <u>data tables</u> for the major variables of interest in each of these subsections. The tables are presented in a separate document for ease of readability. The report text refers to these tables by number.
For most variables, four tables are prepared, organized by four key school characteristics:

- school level,
- school size,
- school zone (rural or urban), and
- poverty level

We chose these four characteristics based on their supposed relationship with student achievement. To confirm the relationships of these characteristics with achievement exist in the Puerto Rico context, we looked at the 2005 and 2006 school-level results on the *Pruebas Puertorriqueñas de Aprovechamiento Académico* (PPAA), as provided by the Puerto Rico Department of Education (DEPR).

First, we ran correlations of the percent proficient in mathematics, Spanish, and English with school enrollment and percent of students below poverty level (see Table 183). Enrollment is negatively correlated with percent proficient in Spanish and mathematics, meaning that higher enrollment is associated with lower test scores. Percent of students below poverty level is also negatively correlated with the percent proficient on all of the PPAA tests, except mathematics in 2005. It is also important to note that enrollment is negatively correlated with poverty level.

Next, we ran an analysis of variance (ANOVA) for each of the six PPAA scores (percent proficient) by school level. There are significant differences for all of the PPAA tests based on level (see Table 184). The differences are strongest for mathematics, followed by Spanish. When comparing the pairwise differences by each test, significant pairwise differences between levels indicate that generally, elementary schools performed significantly better than other school types. Each of the significant pairwise differences, by test, is shown in Table 184. Note that two school types – PS-Instituto

(institutes) and PS-Otro (other) were not included as these schools do not have grade levels participating in the PPAA.

Finally, we compared PPAA results by school zone (rural/urban) using t-tests. In all cases, rural schools performed significantly better than urban schools (see Table 185). As with the differences by school level, differences by zone were stronger for the mathematics scores.

The results of these analyses demonstrate that these four school characteristics – school level, school size, poverty level, and school zone – are related to student achievement, and support our decision to display the survey variables in this manner.

DEPR SCHOOL PROFILE

The tables presented for the DEPR school profile include the entire population of 1,530 schools presented by different school characteristics. These tables are intended to provide an overall picture of the Puerto Rico public education system. The data for the tables comes from the DEPR database, except where noted. Some general observations about each table are as follows:

Number of Districts and Schools by Educational Region *(Table 1)*

> The DEPR system has approximately 1,530 schools in 84 districts
> Educational region with greatest number of schools and districts is Humacao (243 and 18 respectively), while Caguas has the fewest schools (195) and San Juan has the fewest districts (6)

Number of Schools by School Zone and Educational Region *(Table 2)*

> Overall, schools are roughly evenly divided in rural (796) and urban (734) zones
> San Juan is a primarily urban region; Bayamon, Caguas, and Ponce are roughly balanced by zone; and Arecibo, Humacao, and Mayaguez are more rural in nature

Number of Schools by School Size and Educational Region *(Table 3)*

- School sizes are divided into intervals of 100 students, from 0 to 1,400 students
- The average school size is 348 students
- The majority of schools have between 100 to 700 students

- Among the 15 large schools (over 1,000 students), 4 are in the Arecibo region, and 4 are in the Ponce region

Number of Schools by Poverty Level and Educational Region
(Table 4)

- Poverty levels are divided into intervals of 10 percent, from 0-100%
- There are no schools with poverty levels at 20% or below
- The average percent of students below the poverty level is 81.98%
- The majority of schools have student poverty levels between 70-90%
- Among the 13 schools with student poverty levels below 50%, 5 are in the Mayaguez region and 5 are in the San Juan region

Number of Schools by School Level and Educational Region
(Table 5)

School levels are categorized by the DEPR as

1. elemental (elementary),
2. intermedio (middle),
3. Segunda Unidad (K-9, rural),
4. secundario (secondary, 7-12),
5. superior (high, 10-12),
6. todos los niveles (containing grades from different levels),
7. PS-institutos (institutes), and
8. ps-otros (other)

- About 60% of all schools are elementary schools (915)
- In general, distribution of the three traditional school levels (elementary, intermediate, high) by region is very similar
- K-9 schools are more prevalent in the more rural regions (Arecibo, Humacao, and Mayaguez)
- Schools offering grades 7-12 are more prevalent in the San Juan region
- Of the 14 schools that offer all levels, 5 are in the Ponce region
- The 4 institutes are located in the Arecibo, Caguas, Ponce, and San Juan regions (1 each per region)
- Of the 6 "other" schools, 3 are in Bayamon region

Number of Specialized Schools by Educational Region *(Table 6)*

Specialized schools and program information was obtained from the survey interviews – this information was not provided by DEPR
The most popular specialization reported by schools is
vocational/technical (60 schools)

- 15 schools in the Arecibo region (25%) identified themselves as vocational/technical focus, as well as 13 in the Humacao region, and 10 in the San Juan region
- At least one school in each region reported having a vocational/technical focus
- The next most popular specializations are **math and science** (19 schools) and **special education** (18 schools)
- 15 schools in the Humacao region reported having a math/science specialization; no schools in Caguas or Ponce reported having this focus
- 5 schools in the Caguas region, and 4 each in the Bayamon and San Juan regions reported having a special education specialization/focus
- The third most popular specializations are **music** and **art** (10 schools each)
- 7 schools in the Humacao region reported having an art specialization; no schools in Caguas or Mayaguez regions reported having this focus
- 4 schools in the Humacao region reported having a music specialization; no schools in the Bayamon or Mayaguez regions reported having a music focus

Number of Accredited Schools by Educational Region *(Table 7)*

Accreditation status information was obtained from the survey interviews – this information was not provided by DEPR

- The majority of schools have never been accredited (58.76%); about 25% indicate they have been accredited in the last 5 years, and about 7% have been accredited in the last 10 years; 8% did not provide information on accreditation status
- Ponce region schools reported the greatest percent of schools accredited in the last 5 or 10 years (54%); regions reporting the lowest percent of schools accredited in the last 5 or 10 years were Bayamon and San Juan (23% each)

Number of Schools in Improvement Status by Educational Region, as of October 2007 *(Table 8)*

- Overall, about 47% of schools (721) were not in improvement status as of October 2007
- Mayaguez and Arecibo regions have the greatest percentage of schools not in improvement status (56% and 55% respectively); while the San Juan region has the lowest percentage of schools not in improvement status (29%)
- 81 schools (5%) were in 5th, 6th, or 7th year of improvement status
- San Juan region has the highest percentage of schools in these advanced years of improvement status (13%)

INSTRUCTIONAL AND SUPPORT PERSONNEL PROFILE

The tables presented for the instructional and support personnel profile are based on data gathered during the survey interviews from the sample of 1,460 schools.

Average Number of Assigned Teachers *(Tables 9-10)*

- School levels with the highest average number of assigned teachers are superior (40.3) and institutes (40.2)
- As would be expected, average number of assigned teachers increases with school size

Average Number of Professional Support Personnel *(Tables 11-13)*

- The average number of social workers per school is 1.14
- institutes and other schools, along with schools with all levels are less likely to have a social worker in the school
- Average number of social workers increases with school size, but does not seem to vary much by poverty level
- The average number of counselors per school is 0.71
- Secondary schools have the highest average number of counselors (2.13), while elementary and schools with all grade levels have the lowest average number of counselors
- Number of average counselors does not increase consistently with school size
- Schools with poverty levels over 80% tend to have fewer average counselors – on average, less than one per school

- Data on assistant teachers, support teachers, and directors of support are also provided in the tables

Average Number of Other Support Personnel *(Tables 14-16)*

- On average, schools have at least 3 janitors, but they are not likely to have a full-time school guard
- Average number of janitors increases with school size, and large schools appear to have a higher average number of private guards than smaller schools
- Schools with lower poverty levels have higher average numbers of janitors and guards of any type (school, municipal, state, and private) than higher poverty schools

Teacher Daily Attendance *(Table 17)*

- School officials at about 80% of the schools interviewed estimate average teacher daily attendance at above 80%
- Estimated average daily attendance is slightly lower on Mondays and Fridays
- About 3-4% of schools estimate an average teacher daily attendance of 0-10%

Teacher Turnover Rate *(Table 18)*

- Most schools estimate annual teacher turnover rate to be between 1 to 10% during the past three academic years (2005-06 to 2007-08)

STUDENT PROFILE

The tables presented for the student profile are based on data gathered in the survey interviews from the sample of 1,460 schools. The 2007-08 official enrollment figures for the participating schools were obtained from data provided by the DEPR.

2007-08 School Enrollment *(Tables 19-22)*

- 46.51% of enrollment is in elementary schools, 19.32% in high schools, 17.82% in intermediate schools, and 13.42% in K-9 rural schools (Segunda Unidad)
- Most students are enrolled in schools that have between 201-700 students; fewer than 5% of students are enrolled in very large schools (over 1,000 students)

- Nearly 90% of students are enrolled in schools where the average poverty level is 71% or higher
- Enrollment is divided roughly equally between rural and urban schools

Student Daily Attendance *(Table 23)*

- School officials at about 70% of the schools interviewed estimate average student daily attendance at above 80%
- As for estimated average daily teacher attendance, estimated average daily attendance for students is slightly lower on Monday and Fridays
- About 2% of schools estimate average student daily attendance at 0-10%

Student Retention Rates in Elementary Grades *(Table 24)*

- The majority of schools responding to this question (65-70%) indicate student retention rates in grades kindergarten through 6 in the 46-50% range

Student Dropout Rates in Intermediate and High School Grades *(Table 25)*

The majority of schools offering grades 7-12 (70-72%) indicate that dropout rates in these grades are in the 0-5% range; around 15% of those schools estimate the grade 7-9 dropout rates to be between 46-50%

Similarly, the majority schools offering grades 10-12 (55-63%) indicate that dropout rates in these grades are in the 0-5% range; while around 15% of those schools estimate dropout rates to be between 46-50%

TEACHING AND LEARNING

Tables presented on selected teaching and learning factors were created primarily from data gathered in the survey interviews (N=1,460). About 46 of the survey instrument questions were focused on factors related to teacher quality, standards and curricula, student achievement, educational and extracurricular offerings, Data on PPAA test scores and school improvement status were obtained from data files provided by the DEPR.

Teacher Quality and Professional Development *(Tables 26-37)*

Average percent of assigned teachers enrolled in graduate programs (master's and doctoral) *(Table 26-29)*

- Overall, school representatives estimate that 13.78% of teachers are enrolled in graduate programs in curriculum and instruction or educational administration and management – 11.40% in master's programs, and 2.38% in doctoral programs
- Rural K-9 schools indicated the highest average percent of teachers enrolled in master's programs (14.00%); while institutes reported the lowest average percent (4.86%); average percentage of teachers enrolled in doctoral programs does not vary greatly by school type, but is slightly lower for rural K-9 schools and high schools
- Average percentage of teachers enrolled in graduate programs is somewhat similar across school size ranges, except is notably lower in schools in the 401-600 student range
- Average percentage of teachers enrolled in graduate programs varies somewhat by poverty level, but the most notable result is for the school with the lowest poverty level (between 21-30%) which indicates that nearly half of teachers are enrolled in master's programs
- Teacher enrollment in graduate programs is similar for rural and urban schools

Average number of subject and horizontal teacher teams *(Tables 30-33)*
- On average, schools report having at least one teacher team in the subject areas of math, Spanish, English, science, and social studies, as well as at least one horizontal (grade level) teacher team
- Overall, teacher teams seem to be more popular for the schools containing grades 7-12 (intermediate, secondary, high) at an average number of about 2 teams per subject area

- Average number of teams varies slightly by school size and poverty level between 1-2 teams per subject area
- Urban schools report a slightly higher number of average teams per subject area than rural schools

Accessibility of school facility to teachers after school hours
(Tables 34-37)

- About 57% of schools do not allow teachers to access the school facility after school hours
- Secondary and high schools provide slightly better access to teachers after hours
- Afterhours access varies by school size, with certain school sizes appearing to offer better access (101-200 students; 1,201-1,300 students)
- Afterhours access also varies by poverty level, but worsens slightly as school poverty level increases
- Teachers in rural and urban schools have roughly similar access to school facilities outside school hours

Note on highly qualified teachers

Schools were asked to provide numbers of highly qualified teachers in their schools

- The calculated percentage of highly qualified teachers, using the numbers provided by the participating schools, would be about 94%
- These figures do not appear to be reliable, given that the 2003 data submitted to the federal government indicate that only 25% of classes were taught by highly qualified teachers (Education Trust, 2003) and that in 2006, based on its state report, Puerto Rico faced losing funding due to lack of highly qualified teachers in core subjects
- The DEPR has more reliable and accurate data related to highly qualified teachers which were not provided to CRH for the purposes of this project

LEADERSHIP *(Tables 38-50)*

Average number of years in position for current school director *(Tables 38-41)*

- On average, schools report that the current director has been in his or her position for about 6-7 years (average is 6.64 years)
- Schools that offer all levels, elementary schools, and other schools have the highest average for director number of years in position
- Average number of years in current position varies by school size and poverty level but in no particular trend; by far, the lowest number of average years experience for the current director is among schools with 1,101 to 1,200 students (1.21 years)
- Directors in rural and urban schools have similar average years of experience in the current position

Average number of directors within past five years *(Tables 43-46)*

- On average, schools have had 1.66 directors in the past 5 years; this figure is somewhat in conflict with the average reported number of years of the current director (6.64 years)
- institutes appear to have the highest director turnover (2.25 directors in past five years), while elementary schools have the lowest director turnover (1.54 directors in the past five years)
- Director turnover varies somewhat by school size and poverty level, but the largest schools have the highest rates of director turnover – schools with enrollment over 1,300 reported an average of 4 directors in the past 5 years
- Director turnover is similar in rural and urban schools

Average number of schools participating in projects to improve teaching *(Tables 47-50)*

- About half of all schools responding to the survey indicate they were participating in projects to improve teaching during the 2007-08 school year
- Intermediate schools report the highest level of participation among school levels (64.73%), while institutes report no participation in such initiatives
- All of the schools with enrollment of over 1,200 schools report participating in projects to improve teaching
- Reported participation in projects focused on improvement of teaching varies by poverty level, and participation is slightly lower among

schools with poverty levels over 60% versus those with poverty levels between 41-60%

- School participation in projects to improve teaching is similar among rural and urban schools

STANDARDS & CURRICULA *(Tables 55-66)*

Extent of use of DEPR standards and curricular guides in each of the academic subject areas (Mathematics, Spanish, English, Science) *(Tables 55-66)*

- Overall, nearly all schools report using the DEPR standards, general learning expectations, and curricular guides in math, Spanish, English, and science
- There is no difference or variation in reported usage based on school level, school size, poverty level, or school zone

STUDENT ACHIEVEMENT *(Tables 67-70)*

Average percentage of students scoring proficient or advanced on PPAA *(Tables 67-70)*

The relationships of each of the four school characteristics with the PPAA scores in math, Spanish, and English were presented in the findings to the findings section of this report (page 11) and in Tables 183, 184 and 185.

- As noted in that section, elementary schools perform significantly better on the tests than most other school types, particularly for math and Spanish
- Both enrollment and poverty level are negatively correlated with school test performance; that is, when enrollment and poverty level increase, percent of students achieving proficient or advanced decrease
- Rural schools perform better than urban schools

Number of schools in school improvement status as of October 2007 *(Tables 71-74)*

- Overall, about half of schools are in school improvement status (1 to 7 years)
- Under 40% of elementary schools are in improvement status, while over 85% of intermediate schools and nearly 75% of high schools are in improvement status
- Among schools that have over 900 students, nearly all are in improvement status
- None of the schools with poverty levels of 50% or under are in improvement status
- While about 65% of urban schools are in improvement status, while only 35% of rural schools are in improvement status
- Among the schools in 6th and 7th year of school improvement:
- 35% are intermediate schools and 26% are high schools
- All schools have poverty levels of over 80%
- 61% are urban schools

EDUCATIONAL OFFERINGS *(Tables 75-79)*

Percentage of schools offering elementary grades (K-6) *(Tables 75- 78)*

- The great majority of schools classified as elementary schools offer grades K-6, with a very high percentage offering kindergarten (95%) and a lower percentage offering grade 5 (83%)
- Over 90% of rural K-9 schools (Segunda Unidad) offer each of the K-6 grade levels
- Around 20% of schools offering various grade levels offer grades K-2, while about 57% offer grades 5 and 6

Percentage of schools offering intermediate and high school grades (7-12) *(Tables 79-82)*

- The majority of intermediate, secondary, and rural K-9 schools (88% or higher) offer grades 7-9, while about 20% of institutes and 14% of other school types over these grades
- Among schools offering various levels, about 57% offer grades 7-9
- The majority of secondary and high schools offer grades 10-12 (over 85%), and about 64% of schools offering various levels offer these high school grades

Availability (percentage) of music and arts courses *(Tables 83-86)*

- Among music and arts, the most frequent course offerings include visual arts (about 40% of schools) and music (about 30% of all schools)
- Very few schools offer fine arts, band, or dance courses
- The tables present detailed data for the various afterschool activities by the four school characteristics

Availability (percentage) of physical education, computer, health, community service, and sign language courses *(Tables 95-98)*

- The majority of schools offer physical education (about 89%) and health (about 76%); however, only about 27% offer adaptive physical education
- While about half of schools offer computer/IT courses, about 15% offer community service and only 6% offer sign language services
- The tables present detailed data for the various afterschool activities by the four school characteristics

EXTRACURRICULAR OFFERINGS

Availability of after-school offerings *(Tables 99-102)*

- About 62% of schools offer Escuela Abierta for afterschool activities; the most popular offerings are supervised specialized services (46%), prevention (45%), recreation (45%), and fine arts (33%)
- Escuela Abierta is more likely to be available at elementary and rural K-9 schools
- Very large schools (over 1,200 students) do not offer Escuela Abierta
- Availability of Escuela Abierta is higher in schools with over 70% poverty level, and roughly equal for rural and urban schools
- The tables present detailed data for the various afterschool activities by the four school characteristics

Availability of student organizations and clubs *(Tables 103-108)*

- The availability of clubs across the four school characteristics is detailed in the tables, including languages (Spanish and English), arts (music and visual arts), history, library, journalism, future teachers, mentoring, school patrol, student council, environment, DECA, 4H, FLCA, and AJED
- The most prevalent club types among all schools are library club (53%) and environmental club (39%)
- Access to different types of clubs varies by school level, school size, poverty level, and school zone – detailed information is available in the tables

Availability of sports teams for males and females *(Tables 109-116)*

- The majority of schools have male basketball (65%) and volleyball (58%) teams; high schools are very likely to have these teams, while elementary and "other" school levels are less likely to have these teams
- Availability of male sports teams varies by school size and poverty level with no clear trends – the tables provide detailed information
- In general, a greater proportion of urban schools provide male sports teams than rural schools
- The patterns for female sports teams are similar, although notably fewer schools offer female basketball (53%)

Average percentage of students participating in academic and athletic competitions *(Tables 117-120)*

- Overall, schools described a similar pattern of student participation in math, science, English, and Spanish academic competitions (between 36%-38% of students), while average participation in extracurricular athletic competitions was reported at about 50% of students
- Participation in academic competitions is somewhat higher in elementary and high schools compared to the other school types, while participation in academic competitions is very low in institutes and "other" schools
- Participation in competitions varies by school size; notably, very few students in schools enrolling over 1,200 students participate in academic competitions (average 5%)
- Participation in competitions also varies by poverty level, with no real pattern
- Average participation in academic and athletic competitions is very similar in rural and urban areas

RESOURCES AND SUPPORT SYSTEMS

The survey instrument contained 46 questions on equipment and facilities, and 5 questions on parent participation and engagement. The availability and condition of school equipment and facilities was of primary interest to the Puerto Rico Senate given the limited information currently available to help guide decisions on resource allocation for facilities improvement.

For most of the survey items, schools were asked about the total number of facilities/equipment and then to indicate the number of adequate facilities/equipment (see Appendix B). A preliminary analysis on the schools with the most urgent concerns related to health and safety, sanitary services, water supply and treatment, electrical supply, educational facilities, classroom furniture, and classroom equipment was provided to the PR Senate in September 2008.

The tables prepared for this section present detailed information on facilities and equipment by the four school characteristics. Given the sheer volume of data available, only some general observations are made in the report narrative. Readers are encouraged to explore the tables for specific details.

Responsibility for Facilities and Improvements *(Tables 21-24)*

- Overall, the majority of schools (73%) reported that the Office of Public School Improvement (OMEP by its initials in Spanish) has responsibility for facilities and improvements, while about 22% of schools each reported some level of responsibility of the municipality and the Public Buildings Authority (AEP by its initials in Spanish) – percentages do not total 100% as schools could report more than one authority having responsibility for school improvement
- Elementary schools, institutes, and rural K-9 schools are more likely to report OMEP as a responsible agency for facilities and improvements, while secondary and high schools are more likely to report AEP as a responsible agency
- Responsibility for facilities and improvements varies by school size and poverty level, with smaller schools being more likely to report OMEP as a responsible agency
- Rural schools are more likely to report OMEP and the municipal agency as responsible agencies for facilities and improvements, while urban schools are more likely to indicate AEP as having some responsibility

Prevalence of General Health and Safety Concerns *(Tables 125-128)*

- Water filtration and pest infestation are present in about 22% of school classrooms
- Water filtration appears to be more prevalent in "other" schools (32% of classrooms), and much less prevalent in schools offering various grade levels (11%); these schools are also less likely to have pest infestation (14% of classrooms)
- Water filtration and pest infestation vary by school size and poverty level, with no clear trend relationship
- Existence of these health and safety concerns is similar for rural and urban schools

Type and Adequacy of Electrical Systems *(Tables 129-133)*

Schools were asked to indicate the existence and adequacy of four different types of electrical systems: 120V capacity, 240V capacity, transformers, and other

- For schools with 120V electrical capacity and schools with transformers, about 60% indicated this supply was adequate and functioning
- Among schools with 240V electrical capacity and other electrical supply, roughly 65% indicate adequate supply
- Adequacy of supply for the different types varies by school level, school size, and poverty level, but not in any clear direction; for example, rural K-9 schools indicate the generally lower percent adequacy for 120V, 240V and transformer systems, but much higher adequacy of other electrical systems
- Rural and urban schools report similar levels of adequacy of electrical systems, except for other electrical systems, where rural schools report much higher adequacy

Type and Adequacy of Water Supply and Drainage Systems *(Tables 134-137)*

- Most schools (94%) have water supply provided by the AAA, and 87% of those schools report this supply is adequate
- About 53% of schools report having water cistern supply, and 71% of those report that this system is adequate
- While few schools have water supply from a well or some other system, the adequacy of these types of supply is rated much lower – 67%

adequate for schools with wells and 54% adequate for schools with other systems
- Rural K-9 schools, small schools (enrollment 300 and lower), higher poverty schools (above 70% poverty), and rural schools are more likely to have water supply from wells
- Overall, about 69% of schools indicate they have an adequate drainage system
- Above 80% of "other" schools, institutes, and high schools report their drainage system is adequate; only 55% of schools offering various grade levels and slightly above 60% of secondary and rural K-9 schools report having adequate drainage systems
- Percent of schools with adequate drainage varies by school size and poverty level, but not in any clear direction
- Percent of rural and urban schools indicating an adequate drainage system is very similar

Adequacy of Accessibility for Persons with Disabilities *(Tables 139-142*

- About 78% of schools indicate they have access ramps for persons with disabilities, and on average, 84% of these ramps are adequate
- Only 61% of secondary schools report having access ramps
- Availability and adequacy of ramps varies by school size and poverty level, but no clear pattern or relationship is evident
- Rural and urban schools have similar levels of availability or adequacy of access ramps

Adequacy of Sanitary Services *(Tables 143-146)*

- Overall, the majority of sanitary services (showers/bathtubs and toilets/urinals) are reported to be adequate by schools
- The tables show some data as ND (not available) because the overall percent calculation exceeded 100% - putting into question the accuracy of school reporting
- Adequacy for sanitary services for teachers is rated higher than the services for students
- Once again, no clear patterns of adequacy of services are suggested based on school size and poverty level
- Rural and urban schools are somewhat similar in adequacy levels of these services for teachers, while rural schools report higher adequacy levels of showers/bathtubs for students than rural school

FACILITIES AND EQUIPMENT *(147-170)*

Availability and adequacy of classrooms *(Tables 147-150)*

- Overall, about 75% of classrooms and laboratories are reported to be adequate
- The average school is more likely to have a special education classroom and a computer laboratory than a faculty room or library
- The average number of auditoriums per school is 0.1, showing the overall lack of such facilities in schools
- On average, institutes report having about 9 laboratories, but only 50% of labs in these schools are rated adequate; in contrast, 100% of computer rooms and workshops for vocational/technical education at institutes are rated adequate
- Average number of classrooms generally increases with school size, and varies by poverty level, but in no clear trend
- Rural schools have fewer average classrooms and laboratories than urban schools, but their adequacy is rated very similar

Adequacy of classroom furniture *(Tables 151-154)*

- The tables provide information on total numbers (inventories) of desks, chairs, tables, filing cabinets, cupboards, white/chalkboards, bulletin boards, and lockers, as well as percent of furniture rated as adequate by school personnel
- Overall, about 85% of furniture is rated as accurate, except for school lockers
- Only about 6% of schools have lockers available, and about 73% of these lockers are rated as adequate

Availability and adequacy of instructional technology and Internet service *(Tables 155-158)*

The tables provide information on percent of schools with certain types of instructional technology, including computers, printers, photocopiers, duplicators, recorders, VHS, DVD, portable stereos, video projectors, LCD projectors, televisions, and radios, as well as software licenses in math, science, Spanish, English, and library.

For each of these types of technology, the percent of the available technology rated as adequate was calculated

- Above 90% of schools have computers, printers, photocopiers, and televisions, and above 80% of the equipment is rated as adequate
- Schools are less likely to have other types of technology – 77% with DVD players, 33% with portable stereos, 21% with tape or digital recorders, 53% with video projectors, 47% with LCD projectors – however, above 85% of existing technology is rated adequate
- A little more than half of schools (53%) have software licenses in mathematics, while less than half have software licenses in science (43%), Spanish (49%), English (47%), and library skills (38%) – over 90% of existing software licenses are rated as adequate
- Only 64% of schools responded to the question about adequacy of 256K internet access
- Among those respondents, 64% indicated having adequate 256K internet access
- Nearly 90% of responding "other" schools indicate their internet access is adequate and functioning, while only half of secondary schools and schools offering various grade levels report adequacy of access
- Adequacy of internet access varies by school size and poverty level with no discernable pattern, however it is important to note that the very large schools (enrollment over 1,110) had the lowest percent adequate ratings - 0% in some cases
- Rural and urban schools have similar levels of adequate 256K internet access
- Overall, only 41% of schools indicate having internet service above 256kbps – this represents a minimum internet speed necessary to be able to send and receive emails and attachments, and to submit and retrieve information from online data systems (e.g., DEPR)

Availability and adequacy of laboratory equipment *(Tables 159-162)*

The tables on laboratory equipment provide information on percent of schools having different types of equipment including microscopes, chemical related equipment, chemical cabinets, physics equipment, and physics labs
For each of these types of laboratory equipment or facilities, the percent of existing equipment rated as adequate was calculated.

- Only about 39% of schools have microscopes, and fewer schools have chemical equipment (11%), chemical cabinets (13%), physics equipment (7%), and physics labs (7%)
- About 80% of existing laboratory equipment is rated as adequate
- Among those schools which would be offering science courses to intermediate and high school level students (intermediate, secondary,

rural K-9, and high schools), these percentages are slightly better, but the only percentage that reaches above 50% is for availability of microscopes
- Institutes, which serve primarily the vocational/technical population, have slightly better equipment availability to high schools, and 100% of the equipment is rated as adequate

Availability and adequacy of vocational/technical laboratory facilities *(Tables 163-166)*

The tables on vocational/technical laboratories indicate the percentage of schools that have different types of laboratory facilities, including mechanical, automotive mechanics, electrician, electronics, instrumentation, chemical process, and refrigeration technician. For each of these types of laboratory facilities, the percent of existing laboratories rated as adequate was calculated as well

- Less than 3% of all schools have vocational/technical laboratory facilities available for students
- Among the vocational institutes responding to the survey (PS-instituto):
- 67% indicate they have instrumentation and chemical process laboratories;
- 50% indicate having mechanics and electrician's laboratories;
- 25% indicate having a refrigeration technician laboratory; and
- no vocational institutes indicate having an automotive mechanics laboratory
- Further, two-thirds or less of the existing laboratories at these schools are rated adequate, except for electronics and refrigeration technician laboratories which were all rated adequate
- Among "other" schools, some of which serve a vocational or pre-vocational population, slightly less than 20% have mechanics and automotive mechanics laboratories, while about 10% indicate having electrician's, electronics, and refrigeration technician laboratories; the adequacy of most of these is highly rated, but in some categories, no information was provided (ND)
- Some high schools have vocational laboratory facilities, most notably automotive mechanics (12%) , electrician (11%), and mechanics (11%); about 50% or less of these labs are rated adequate
- Urban school students have greater access to all types of vocational laboratory facilities than rural students, but the adequacy of existing facilities varies slightly by school zone

Availability and adequacy of gym facilities and equipment
(Tables 167-170)

Schools were asked to indicate numbers of certain types of gym facilities and equipment – gymnasiums, covered courts, uncovered courts, playgrounds, free weights, exercise machines, mats, and other equipment – and to indicate numbers of adequate equipment; these figures are presented in the tables.

- Less than 5% of schools indicate having a gymnasium or a playground, while roughly 35% of schools indicate having covered and uncovered court facilities
- About 65% of existing gymnasiums are rated adequate, while 81% of covered courts, 66% of uncovered courts, and 74% of playgrounds are rated adequate by schools
- Not surprisingly, schools also indicate a lack of gym equipment – less than 5% of schools have free weights, exercise machines, and other equipment – and a very low percentage of the equipment is rated as adequate (below 20%)

PARENTAL INVOLVEMENT *(171-182)*

Average number of organized parent meetings per year *(Tables 171-174)*
- The average number of meetings with parents per year organized by the principal is about 2.7 meetings
- Secondary schools report the highest average number of meetings (2.83) and institutes the lowest (1.0)
- Average number of meetings varies by school size and poverty level, but not with any particular trend
- There is no difference in the average number of parent meetings organized by principals between rural and urban schools

Average number of active parent volunteers *(Tables 175-178)*

- The average number of active parent volunteers reported is very low – 11.1 per school
- Schools having various grade levels report the highest average number of volunteers (16.4) followed by elementary schools (13.4)
- Average number of active parent volunteers varies by school size and poverty level, but not with any particular trend
- Rural schools have more active parent volunteers than urban schools (12.3 vs. 9.8)

Accessibility of school facility to parents after school hours
(Tables 179-182)

- On average, parents have access to schools about 1.8 days during the week
- Parent access is greater for "other", secondary, elementary, and rural K-9 schools
- Very large schools (enrollment 1,110-1,300) report the highest average number of parent access days per week
- Parent access varies a bit by poverty level, but not in any direction, and parent access in rural and urban schools is quite similar

Findings and Recommendations
From the Data Collection Teams

DEPR School Profile

The Directory of Schools provided by the Office of Planning and Evaluation in April, and the one obtained later in August where slightly different themselves and both differed from what we observed when we visited the schools. Some older schools were closed and the students were merged to newer school buildings. For example in the San Juan Region some schools had been re-assigned to a different districts and where uncertain as to whom would provide them maintenance and support. Many school director positions are vacant. Over the summer new principals where hired making data collection difficult if there was no administrative or clerical staff at the schools willing to share information or grant permission to visit the school.

Electricity

All schools have many types of technology equipment but many schools have problems with electricity hindering the ability of school directors to complete the required tasks.
The Department of Education must invest in securing the electrical infrastructure of schools (such as Uninterrupted Power Supplies—UPS) before real access to technology in schools is available.

Access to the Internet

Almost half of the schools did not have access to the internet. Schools with no access to the internet force school directors to enter all information manually for each staff group (teaching, clerical, custodial, cafeteria, administrative, resource) four times a day (morning, noon, after lunch, at the end of the day) from the district office (keeping them away from school) or from home forcing them to work very late hours on administrative tasks. Internet connection speeds less than 256 k are educationally useless and prevent transmission of large data files such as instructional materials with embedded images or videos. This is even more true when there are many users attempting to access the same 256k portal.

Specialized Schools

There were none or very few specialized schools that where low performing or in need of improvement regardless of grade or poverty level. In this study, Vocational Technical Schools were considered specialized. Students who enroll in specialized schools learn in ways that support their interest (music, sports, fine arts, science and math, vocational technical) and tend to be more engaged in learning and thus have a better academic achievement.

Curricular and Extracurricular Offerings

The Department of Education must establish alliances with qualified organization to broaden and enhance course offerings for hands-on learning pertinent to the occupational demands of the district (i.e. In Vieques and Culebras SD Kayaking, sailing, repair of navigational equipment). The DE must seek to increase the number and types of specialized schools or at least clubs in schools throughout the island. Schools could provide internships for students from 2 and 4 year institutions to lead some of the clubs or offer after school programs. There are currently Charter School Funds and Smaller Learning Communities Grants that if approved would provide funds to create special interest schools and smaller high schools.

CAPACITY OF PERSONNEL

The School Director

In many schools, the director had less than a year in that school building. New school directors need to receive comprehensive orientation from both the DE and the OCR on procedures required for efficient school management. Most of these principals asked for copies of the completed surveys because it would help them learn where all the information is located.

Respond to school director's requests for assistance with improvements.

Most directors interviewed expressed extreme disappointment with the time they spend requesting services that they too often end up doing for themselves even buying the materials themselves. As a result, many principals say it is best to be a teacher. One makes more money as a teacher and one does not need to worry about anything administrative matter.

School directors should not act as inspectors for the Puerto Rico Department of Education in matters of remodeling or new construction.

The PR-DE should have specialized, trained inspectors who represent the interest of the Department of Education and the Government of Puerto Rico. These inspectors must review project plans; monitor the construction; and, once completed, certify if the construction meets code requirements. Code citations and fines should be imposed anytime the school or a construction project at the school does not comply with construction standards.

Faculty Quality and Engagement

Puerto Rico's teachers are about to begin another collective bargaining negotiation for a new contract. They currently are choosing the union that will represent them.

In the contract, the government must increase requirements and resources for professional development and to enhance teacher performance such as assistants to enter student data in electronic and/or paper reports cards, to assist in organizing and managing meetings with parents and community, to evaluate data and prepare documents for evidence-based decision making (e.g. those used in the accreditation process), to meet in content and/or grade level teams to stay current on grade level requirements, to help meet students' diverse learning needs, to prepare instructional plans so instruction is not interrupted when teachers are absent; to prepare inventories of teaching and learning resources.

At the same time, the government needs to review the P.L. related to teacher compensation to increase teacher compensation and to assure that compensation is not exclusively related to seniority and higher degree attainment. Compensation should also be based on a teacher's ability and willingness to innovate teaching and learning, to meet with parents to improve student performance and to develop rapport with the surrounding community so as to improve student opportunities for learning and personal development.

Teachers must offer hands-on learning experiences to their students. Enhance teaching and learning by providing more vocational technical programs in middle and high schools. Establish apprenticeship where appropriate.

The Industrial Education Teacher from Dr. Alturo Morales Carrión commented, "Most schools need minor repairs in plumbing causing excessive

water waste or sever hygiene problems that could be improved if not all custodial staff had the same assignment, income or schedule and if money was available for tools and materials".

A female Industrial Arts middle school teacher from the Dr. Arturo Morales Carrion (a 7-9 middle school in San Juan V school district) uses adverse physical plant situations as scenarios for teaching and learning

- This teacher has not budget for this hands-on education.

- This teachers must go to other schools to get the tools and materials that the other school plans to eliminate from their industrial arts programs. These tools are fixed by students as part of learning.

- This teacher said that if she had the materials she could make the cabinets for the science class while teaching her students carpentry

- This teacher needs a larger classroom and materials to teach. (In image of her hanging stuff from the ceiling)

"*Why do we have so many problems with electrical facilities in our public schools when we have 9th -12th grade students in vocational technical programs who can apprentice with a teacher, help evaluate situations of schools in their district (related to plumbing, drafting planes, electricity, carpentry), do minor repairs, build cabinets, change light bulbs and light fixtures as a way learning*"

Some custodial staff are very committed to their work while others are not.

Although the survey did not ask, most schools where very dirty, and in most schools we found school directors over the summer mowing the lawn, spraying insecticides, painting and cleaning. Some schools do not have enough custodial staff. Others have 5 custodians but only 2 work and the others are confident nothing is going to happen to them for doing nothing.

David Velez from the Ramon Rodriguez School in Audile suggested that the new school contract must be revised so that experienced custodial staff are re-classified so they can do minor repairs in the school. Currently, if a custodian does make minor repairs he is reprimanded by the union or by OMEP. Prior to working in the school Mr. Velez worked in the private sector where he was provided tools and materials and his job position was re-classified and he was promoted.

In the school system many custodial staff are already certified electricians or plumbers but are not allowed to do that job without negative consequences. Some custodial staff can fix bathroom leaks, windows, detached doors, cut grass, minor painting (with little or no additional training). All custodial staff cannot do the needed work from 8:00-3:00 while classes are in session, so their schedules should be shifts with someone other than the principal to supervise their work if their schedule is before 7:00 a.m. or after 4:30.

Data Management:

During the data collection process some school directors had administrative staff complete the interview with instructions over the phone in less than two hours. Others required over five visits and our surveyors still had missing data after spending over 20 hours to obtain a completed survey.

The Department of Education must provide and/or incentivise school directors and their administrative staff to maintain effective data management systems. Almost half of the school directors did not know or it was hard for them to find data for 2006-2007; budget for 20006, 2007, 2008; the total number of special education students by grade, disability type and instructional arrangement.

Collecting data in this study was very difficult in spite of a similar study that was conducted by the Office of the Auditor General in 1996. Public Law 77 requires school directors to have readily available:

• An up-to-date inventory of facilities, furniture, laboratories (science, vocational), equipment, supplies, computers, computer software licenses, library resources, physical education resources, and special education equipment on file at all times.

• Up dated information (like an inventory) of the personnel including:

  o Instructors
  o Administrative staff
  o Janitorial staff;
  o Foods and services staff

• For all instructional personnel (teachers and other related personnel) the school directors must keep information on:

  o Educational (diploma) (matter)

- o Staff studies (for a grade or diploma or for professional development) (matter)
- o HQT Teachers
- o Staff experience (year at: DE, school, grade and matter)
- o Teaching performance (matter)
- o Staff employment status (permanent, etc. and Number)

- For all administrative personnel (clerical, custodial, cafeteria, administrative, other resources), school directors must keep information on:
  - o Education (diploma) (matter)
  - o Studies (for a grade or diploma or for professional development) (matter)
  - o Experience (year at: DE, school
  - o Status (permanent, etc. and Number)

Information Technology Requirements of School Directors

Schools are making the transition from paper records to digital systems (TAL, SIE). During the interviews, school directors said they have no access and cannot use the information they enter at TAL and SIE for 2007-2008 They were not as interested in finding these data for the previous two years.

Create a Culture of Evidence-based (Data Driven) Decision Making

All school directors want assured access to all available digital information to make decisions on a regular (daily, weekly and monthly) basis especially concerning:

- o School offerings
- o Enrollment
- o Teacher and student attendance
- o Budget
- o Safety and security

Physical Plant

Monitor the status of minor as well as major physical plant projects being done. School directors with over 10 years of experience in the San Juan IV and V school district said "repairs done by the National Guard are still in good condition while those done by private contractors are either incomplete or break quicker.

School directors shared with the field assistants up to 10 letters to OMEP or to AEP repeatedly asking for some infrastructural action. For example at the Carlos Ufret School in Humacao, that was built in 2002 and now has less than 10 years of use, major structural issues have been identified and water leaks and fungus growth

have compromised health and safety of teachers, staff, students and visitors. Neither the DE nor AEP responded to the requests of this school director until after this study.

Improvement Plans for School Buildings and Facilities must respond to real needs

While some community members may appear diligent and certainly many are assertive and vocal, school infrastructures and improvement plans must be professionally developed and managed.

Create community partnerships for building repairs which can be monitored locally by trained personnel.

Schools can do a more efficient job by hiring a local handy-person for minor repairs than waiting for OMEP, AEP. For example, for the schools in the district of Aguadilla, members of the military at the local base can do all repairs and sometimes enhancements to the school.

Safety and Security

All schools need a multi-risk prevention plan. All schools must have adequate types, numbers and placements of fire extinguishers. The physical layout of the school should be well known with school floor plans should be strategically placed throughout the school. A good example of emergency preparedness is the Ana Roque Dupre School in San Juan V.

Puerto Rico has requested federal funds for facilities development and some school director's wonder if the money was used for its intended purpose and, further, if the facilities built with this money meet the requirements of funding.

This was a comment made by the Juan Suarez Peregrina School.

Many schools in Puerto Rico are more than 40 years old and lack the capacity to sustain the electrical load for education in the 21st century.

Schools <u>need</u> more computers. These do now and will in the future require additional electrical supply that is fully compatible with information technologies. Further support will also be needed (e.g. air conditioning, humidity control, additional electrical outlets, etc). Most schools surveyed had electrical facility problems. Electrical substations that serve schools must be upgraded.

Schools with Structural and Land Management Difficulties

Zoning Regulations in Puerto Rico should be monitored by the Legislature and the Puerto Rico Department of Education so permits are approved for new housing developments that include educational facilities for the population that will reside in the development.

Some new schools (e.g. Heyke Schools at Altamesa in the San Juan District) have been built on land without proper site development. Once land is approved for school construction, soil conditions must be evaluated or prepared to prevent predictable structural failures and difficulties with (waste) water management.

For example, at the Juanita Garcia Pedraza, San Juan IV (Caño Zone) the developers did not take into account soil information available from the local Estuaries of the Bay Organization. The result was construction delays that left a huge open hole on the site which was a hazard to students, staff and community members.

Another example is the Dr. Jose Narcissi Gandara school that has a tree inside the school which is breaking the cement wall separating the school from Hogar Crea. The wall can fall onto a compressed gas tank.

Adding new sections to old schools

Schools are building second floors on old schools that cannot sustain the load causing dangerous structural risks to the students. For example the cafeteria of the Dr. Arturo Morales Carrión has had problems with the ceiling as a consequence. School directors (or more properly, specialized building inspectors) need to communicate with contractors to insure they respond to the school needs.

Vieques and Culebra School Districts

Vieques and Culebra schools do not have the number of students required to justify having a theatre, dance, fine arts, teacher in each school. Only the high school in Venues has some vocational technical offerings with very little or no materials. This students, the teachers and the principals are very isolated. But most teachers come to the big island in the weekend the students have nothing. No movies, no bowling, no public library. In Culebra students do not have access to any vocational technical program. And in neither island there are any postsecondary programs.

- Many teachers and principals start in Vieques or Culebra because it is easier to get an entry-level position. After they are assigned most transfer away to another district in the "big island".

- There should be an additional student discount to take students on the ferry from Vieques or Culebra to Fajardo.

- These school districts recommend the vocational technical program should include mechanics of boats and sailboat, and other skills pertinent to the occupational demand of the town i.e. If a boat has a problem in the bay they need to pay to haul it to Fajardo or fly the technician to make a diagnosis and if it needs a part they need to fly back to Fajardo and return once it has the part.

- The region should assign psychologists and speech pathologists to visit the island one day a week because parents seldom have the money to transport students to Fajardo to receive services.

Accreditation

All schools should be required to start the accreditation process by the Puerto Rico General Academic Council. The DE must partner in a long-term support strategy to help them overcome the limitations imposed by the existing physical plant.

Staff Recommendations and Conclusions:

Through the survey we saw schools with limited curricular offerings and clubs in rural schools on the island (i.e. Arroyo and Vieques School District). The surveyors and analysts conducting the present study were not asked to identify likely occupational demands of the 21stt Century in Puerto Rico. We were not asked to ascertain if the students of Puerto Rico are being prepared for such demands.   We did observe that there is little instructional diversity in the schools. Students in the 21st century will act as their own researchers and many will become independent entrepreneurs. Existing schools are a product of the Industrial Age. We have now entered the Information age. Though Puerto Rico has many educationally rich and diverse resources for hands-on education (such as the ocean, estuaries, bioluminescent bays and lagoons, plantations for bananas, pineapples and coffee and processing plants), few are actively explored by school programs.

Many school directors where skeptical about the present survey because information collected in previous surveys and studies were never used to provide evidence-based support. Nevertheless, the majority of directors welcomed the survey as a forum to share issues especially concerning the physical plant.

The Senate should share the findings of his study with the Auxiliary Secretaries for Administrative Academic Affairs, school superintendents and the school directors. This study should be repeated on an annual basis to prepare school directors to

respond to the requirements of PL 77. Results from this study should be put on-line so that school administrators, teachers and the general public can explore the data sets and test evidence-based hypotheses about school development and reform.

FINAL RECOMMENDATIONS

INADEQUATE FUNDING CAUSES VIOLATIONS OF HEALTH, SAFETY & EDUCATION AL STANDARDS

The information gathered in both studies point out a glaring inadequacy in the funding of an infrastructure to the support the educational programs of Puerto Rico. A significant deterioration of physical facilities is evident throughout the school system. Many schools lack even moderately adequate facilities. Some schools do not have even the basic facilities and are dangerous to the health and welfare of the students and staff who attend those schools. It is imperative that the health and safety issues identified in this report are addressed immediately. In addition, a long term capital investment program to address the significant deficits in the facility, material, and equipment infrastructure of the Puerto Rican educational system must be developed, funded and implemented.

ENHANCE PUBLIC AWARENESS OF SCHOOL STRATEGIC PLANS

The achievement of students in the public schools in Puerto Rico lags behind the achievement of students in the DoDEA schools in Puerto Rico and other states with comparable funding. In part this is a function of high poverty levels. It was difficult to identify, high performing public schools at the secondary level in phase II of this study. When the two samples of high and low performing schools were compared against the AdvancED criteria, it was difficult to identify areas in which there was a direct correlation between a specific criterion and the performance of students. Even though there are strategic planning processes, school improvement plans and a variety of reports required by the Department of Education and federal No Child Left Behind mandates, it seems like these requirements are completed, however, the use of these documents in informing the operation of the educational program in each school seems to be sporadic since there was a general lack of awareness of improvement planning outside of the leadership of each school. If these systems are to be effective they must be a key component in the planning process for each school and readily evident to all members of the school community. It is imperative that data driven reform systems become an integral component of every school. All teachers, administrators and school communities must be taught how to use these systems. These systems must be monitored both internally and externally until a process of continuous improvement becomes the norm in every school in Puerto Rico.

Following are some recommendations in establishing, growing and monitoring this system.

SYSTEMATIC SCHOOL IMPROVEMENT PROCESS

A systemic school improvement process should be implemented based on the AdvancEd criteria. Each school and each district should complete a needs assessment of their current status based on the AdvancEd criteria. Each School and each district should develop action plans to address the highest needs identified. These action plans should be stated in terms of student results and should be within the control of the school or district community to address.

IMPLEMENT SYSTEM OF ON-SITE SCHOOL VISITATIONS

A system of school visits/evaluations should be developed and implemented to provide oversight and confirmation of the status of the school improvement process in each school and district.

ASSESS AND ADDRESS COMMUNITY FEEDBACK

A formalized feedback program should be developed and implemented to provide a means for assessing student, parent, community, teacher and administrator opinion on the status for addressing each of the AdvancEd criteria within each school and district. This feedback program should include annual surveys as a minimum but could also include other periodic web-based or paper based opportunities for input.

IMPLEMENT SYSTEMWIDE PROFESSIONAL DEVELOPMENT

A professional development fund should be established for the Puerto Rican educational system and distributed to each school as a set aside to assist in building the capacity of teachers and leaders to address the achievement needs of all students.

ESTABLISH COMMUNITY ADVISORY COMMITTEES

In order to facilitate parent and community involvement in the schools, elected advisory committees should be established at each school to advise the principal in the operations of the school. These committees should include representation from the students, teachers, parents and community and should have the power to make recommendations to the principal and appeal recommendations that are not accepted.

FAIR AND FREQUENT EVALUATIONS OF TEACHERS & INSTRUCTION

There were indications in the surveys that the evaluation of teachers and instruction by school level administrators was sporadic and sometimes nonexistent. A system of instruction should be adopted throughout the schools of Puerto Rico in order to create a common vocabulary and view of instruction so that both teachers and administrators have a common tool to use for supervision and improvement of instruction. Training in this system should be provided to every teacher and administrator. A key component of each school level administrator's job should be leading instruction though supervision and classroom visits.

DISTRIBUTE RESOURCES BASED ON STUDENT POPULATION & NEED

There were indications in the interviews that the school budget/allocation of funds is not getting to the individual schools. An auditing/accountability system should be implemented for the distribution of resources based on student population and need. This system should be monitored to insure that all funds are used for the intended purpose.

LOWER EFFECTIVE SCHOOL SIZES AND INCREASE PERSONALIZATION OF EDUCATION

Based on the twenty school survey, there is an indication that there is an inverse relationship between school size and student achievement – it is more likely for a student to achieve at a higher level if the school that student attends is smaller rather than larger. In order to minimize the negative impact of school size on student achievement several steps should be taken to increase personalization in all Puerto Rican schools. Larger schools should be subdivided into houses or academies with students and faculty of these

units spending more time together. Mentoring programs should be established in all schools were each student has an opportunity to form a working relationship with an adult in the school community and each adult has responsibility for looking out for the well being of a group of students. A competency based guidance system should be implemented, funded and staffed in each school.