

H. CARL McCALL
STATE COMPTROLLER



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STATE OF NEW YORK
OFFICE OF THE STATE COMPTROLLER

December 31, 2002

Mr. Robert King
Chancellor
State University of New York
State University Plaza
Albany, NY 12246

Re: Student Computer Resources at University
Colleges and Technology Colleges
Report 2002-S-3

Dear Mr. King:

Pursuant to the State Comptroller's authority as set forth in Article V, Section 1 of the State Constitution and Article II, Section 8 of the State Finance Law, we have audited selected aspects of the management of student computer resources at the university colleges and the technology colleges of the State University of New York. Our performance audit covered the period February 19, 2002 through July 15, 2002.

A. Background

The State University of New York (SUNY) is the largest public university system in the nation and offers a complete range of academic, professional and vocational programs. SUNY's mission is to provide high quality, broad access education that will meet the current needs of society and allow for technological advancement. SUNY comprises 4 university centers, 13 arts and sciences colleges (university colleges), 6 agricultural and technical colleges (technology colleges), 4 specialized colleges, 5 statutory colleges, and 2 independent health science centers.

Each of SUNY's university and technology colleges maintains computer resources to benefit students and to enable them to complete their coursework. These colleges maintain computer workstations, equipped with desktop or laptop computers, in campus computer laboratories (labs) for student use. The Colleges provide two types of computer labs; open access labs and restricted access labs. Open access labs are available to all students during stated hours and days of operation, whereas restricted access labs are generally located in departmental classrooms and are used by designated students attending specific classes. Colleges also provide varying levels of information technology (IT) support for student computing. Most campuses (with three exceptions) have a Help Desk staffed by campus IT personnel and/or student assistants. Help Desk staff assist students and/or

faculty with such matters as lost files, printing difficulties, disk problems, software questions, e-mail problems and other matters not involving equipment repairs. While Help Desk staff generally provide assistance over the phone or through e-mail, they may also provide direct help in certain instances (e.g., if a student brings a laptop computer to the Help Desk location). Most campuses (14 of 18 responding to a questionnaire we sent) also assign staff monitors to some or all labs to provide technology support.

In November 2001, the Chief Information Officers at each of the SUNY campuses formed the Council of Chief Information Officers (CCIO). CCIO goals include identifying emerging IT issues and trends and apprising senior campus management and SUNY System Administration of these matters; proposing strategic solutions to key IT issues based on best practices, benchmarks and shared experiences; and coordinating campus information technology concerns with SUNY System Administration.

Each SUNY campus has significant autonomy in determining the manner by which it allocates funds and provides programs and services to students. SUNY System Administration provides overall leadership, policy direction and support for the campuses. The Office of the State Comptroller's 2000-2001 Budget Analysis showed that SUNY's total State funding has not changed over the prior five-year period. In addition to State support, each campus relies on student tuition, student fees (including a technology fee) and other miscellaneous revenue to support operations. The 18 university and technology colleges in our audit scope expended almost \$30 million on IT resources during fiscal year 2000-2001.

B. Audit Scope, Objectives and Methodology

We audited selected aspects of the management of student computer resources at 12 of the 13 university colleges and at all 6 technology colleges for the period February 19, 2002 to July 15, 2002. We did not include one university college, Empire State College, in our audit scope because its campus structure was unlike the structures of the other university and technology colleges. The objectives of our performance audit were to determine whether campuses have: (1) adequate computer resources that are sufficiently accessible to students and adequately supported by IT staff resources; (2) appropriate controls to protect student computers from theft and misuse; and (3) a strategic plan for future implementation of IT, including student computer resources.

To accomplish our objectives, we interviewed SUNY System Administration officials to determine their role in allocating IT funding and monitoring implementation of IT initiatives. We sent a questionnaire to the university and technology colleges to gain a general understanding of how each campus manages its IT resources for student computing. Using the results of a SUNY System Administration student satisfaction survey, we selected ten campuses to visit to conduct interviews and to observe computer labs. From the student satisfaction survey we selected to visit six campuses that had a high level of dissatisfaction and four campuses with the lowest level of dissatisfaction with student computing labs and access to such labs. The ten campuses selected (see Exhibit A) comprised over 50 percent of the student population in our audit scope. Specifically, we interviewed 29 IT staff, 5 high-ranking campus officials and 11 lab staff/monitors. We also made observations at 141 computer labs (including both open access and restricted labs), which were equipped with a total of 2,069 computer workstations. We tested a random sample of computers in

each lab to determine if they started up correctly, used appropriate academic software, and were protected by current virus protection software. We examined the Mission Review Memoranda of Understanding (MOU) between each campus and SUNY System Administration, which outlined general campus goals, benchmarks and future directions. We also reviewed IT strategic plans for those campuses that had plans.

As is our routine practice, we requested a management representation letter in which agency management provides assurances, to the best of their knowledge, concerning the relevance, accuracy and competence of the evidence provided to the auditors during the course of the audit. The representation letter is intended to confirm oral representations made to the auditors during the audit and to reduce the likelihood of misunderstandings. In the representation letter, agency officials assert that, to the best of their knowledge, all relevant financial and programmatic records and related data have been provided to the auditors. Agency officials would further affirm that either the agency has complied with all laws, rules and regulations applicable to its operations that would have a significant effect on the operating practices being audited, or that any exceptions have been disclosed to the auditors. However, SUNY officials have declined to provide us with a representation letter. If SUNY officials do not provide a standard representation letter, we lack assurances from SUNY officials that all relevant information was provided to us during the audit, or that oral representations provided during the audit were accurate. Therefore, readers of this report should consider the potential effect of this audit scope limitation on the findings and conclusions presented in this report.

Except as noted in the previous paragraph, we conducted our audit in accordance with generally accepted government auditing standards. Such standards require that we plan and perform our audit to adequately assess those SUNY operations that are included within the audit scope. Further, these standards require that we understand SUNY's internal control structure and compliance with those laws, rules and regulations that are relevant to the operations that are included in our scope. An audit includes examining, on a test basis, the evidence supporting transactions recorded in the accounting and operating records and applying such other auditing procedures as we consider necessary in the circumstances. An audit also includes assessing the estimates, judgments, and decisions made by management. We believe that our audit provides a reasonable basis for our findings, conclusions and recommendations.

We used a risk-based approach to select activities for audit. We therefore focus our audit efforts on those activities we have identified through a preliminary survey as having the greatest probability for needing improvement. Consequently, by design, we use finite audit resources to identify where and how improvements can be made. We devote little audit effort to reviewing operations that may be relatively efficient or effective. As a result, we prepare audit reports on an "exception basis." This report, therefore, highlights those areas needing improvement and does not address activities that may be functioning properly.

C. Results of Audit

We were unable to satisfy our audit objectives about whether campuses have adequate computer resources that are sufficiently accessible to students with necessary staff support because we could not identify standards to serve as criteria in drawing conclusions on these matters for a

major university setting like SUNY. Neither System Administration nor the campuses had established such standards. We did not try to develop them because such activity would be beyond the scope of our audit. We did, however, identify some best practices and some improvement opportunities for the management of campus student computer resources as a result of our audit survey and site visits to selected campuses. Also, we found that improvements could be made to protect student computer workstations from possible theft and misuse at some campuses. In addition, we found that 3 of the 18 campuses covered by our audit did not provide a written strategic plan for future implementation of IT including student computer resources. These results are discussed in greater detail in the remainder of this report.

1. Adequacy, Accessibility and Support for Student Computer Resources

As previously discussed, we were unable to identify a standard to use as criteria for determining the adequacy of student computers, the required accessibility of such computers or the necessary level of IT support for their operation in a major university setting like SUNY. SUNY officials are in the best position to identify such standards. The CCIO may be able to formulate generalized standards for measuring the adequacy and accessibility of student computer resources and related IT support, or to help campuses formulate such standards. It is always important that campuses have sound methods of demonstrating needs, including the need for student computer resources. However, given that SUNY's State funding has not grown over the last five years, it is particularly important to identify standards for student computer resources, and what needs to be done to meet the standards, if campuses are to dedicate scarce funds to improving these resources in the most efficient and effective way.

As a result of our audit survey and campus visits, we found that some colleges did not use existing resources as efficiently as possible or did not have enough IT staff to support student/faculty computing needs. We found that other campuses avoided or overcame such difficulties by using a variety of innovative measures – or best practices. Listed below are best practices that we observed at colleges or that were noted in campus responses to our survey questionnaire. We also list potential improvement opportunities SUNY could consider implementing at certain campuses to enhance student computer resources.

Best Practices

- Compile statistics on student computer lab workstation usage as a basis for determining the number of computer workstations needed to support student needs.
- Use student assistants in each restricted lab to permit the lab to be available for general student use when a scheduled class is not in session.
- Permit students to sign laptop computers out of the library (just like books) as a means to expand availability to student computing resources. Similarly, Help Desks can make loaner computers available to students in special circumstances.
- Purchase a limited number of computers to be made available to students, at an annual rental fee, for use in their dorm rooms for the year. Students who participate in this

program avoid a big investment in computer hardware, and the campus is able to add these computers to its overall computer inventory at the end of the year.

- In unmonitored labs, use a log to record and track computer problems requiring attention.
- Use a combination of professional staff and/or student assistants to enable all open labs to have some level of support.
- Post lab hours for student reference. List the hours of availability of alternate labs so students can seek other options when the lab they are at is full.
- Provide a manual that student assistants can refer to when troubleshooting common problems that students experience in the labs.
- On weekends, staff the Help Desk with students to afford additional support that might otherwise not be possible.
- Stagger full time staff schedules to permit Help Desk support to be available for greater periods of time.
- Automate the installation of anti-virus software updates on campus computers and require students to install virus protection software on their personal computers. These measures can increase security over computer resources, and also enable IT support staff to spend more time directly helping students.
- Place older computers in the lobby, cafeteria, library, etc. to enable students to check their mail without taking up computer lab resources.
- Use wireless networks or network ports in the classroom, cafeteria, café and open labs to provide students with the flexible options for connecting their personal laptop computers to the campus environment.
- Use software to track the location of stolen laptops to help maintain maximum computer availability.

Improvement Opportunities

- In the response to our survey questionnaire, officials at one college stated that their most common student complaint was that they need to update the IT infrastructure to reduce, network congestion, computer freeze-ups, lost user work and power problems.
- Another campus stated that the most common student complaints indicated a need to increase hours of lab availability to help reduce waiting lines for lab space, overcrowding, and uncomfortable or noisy conditions.

- Posting Help Desk phone numbers in labs and making telephones available there would enable students to readily obtain necessary support.

Campus officials informed us that they were seeking ways to share best practices and to collectively solve problems pertaining to student computing resources. According to some campus officials, limited funding requires them to be creative in the use of their IT monies. Moreover, these officials said they would welcome a forum to share ideas. We recommend that SUNY System Administration enlist the assistance of the CCIO in evaluating these best practices and improvement opportunities and in sharing any resulting information, as appropriate, with the campuses.

2. Security Concerns

Without proper protection, computer workstations could become damaged or stolen, making resources inaccessible to students. Colleges should have policies in place to provide for the protection of student computer workstations. These policies should identify the physical security measures to follow to guard against theft of computer equipment; require the use of passwords to operate computer workstations; and call for the use of up-to-date anti-virus software. We identified the following security concerns as a result of our audit:

- One campus (Delhi) has no written policies regarding student use of IT resources. Three campuses (Potsdam, Delhi and Maritime) do not have written computer security policies. Without such policies, neither students nor IT staff are aware of basic security measures that should be followed to protect student computer resources.
- Two campuses (Maritime and Purchase) had locks on the computer lab doors, but that was the extent of physical security over student computer resources in the labs. At these campuses, none of the labs are equipped with video cameras and the computers are not secured with locks or cables. As a result, the lab computers are subject to theft when the labs are open.
- Five campuses (Buffalo, New Paltz, Fredonia, Old Westbury [library only] and Geneseo [one lab only]) do not require students to sign-on with a user identification and password in order to operate computers in the labs. At another campus (Alfred), a lab located in the college's recreation room is not monitored. Thus, students are able to sign-on and then allow neighborhood children to use the student computers.
- Virus protection software was outdated (as far back as 1999) or missing in some labs and/or on some computers at seven campuses (Buffalo, Maritime, Purchase, Geneseo, New Paltz, Alfred, and Old Westbury.) As a result, student computers on these campuses are susceptible to virus attacks.
- There were some problems with the inventory tracking system at three of the campuses (Buffalo, Purchase, and Morrisville). Specifically, computers were moved from one lab to another and such movement was not recorded on the inventory listing. An accurate inventory showing the correct number of computer workstations in each lab helps to maintain accountability for assets and to detect missing assets.

3. Strategic Planning for Information Technology

Each campus should have a strategic plan for IT, including student computing. Furthermore, we suggest that each plan should be updated at least every two years. The date of both the creation of the plan and its last update should be apparent. When we requested that all 18 campuses in our audit scope provide us with their IT strategic plans, we found that six campuses (Alfred, Brockport, Canton, Oswego, Plattsburgh and Purchase) maintained current plans with clear goals and objectives. However, we also found that 3 campuses lacked plans (Delhi, Geneseo and, Maritime); 2 campuses had only draft plans (Fredonia and New Paltz); 1 campus had an undated plan (Cortland); and 6 campuses had not updated their plans in the last two years (Buffalo, Cobleskill, Morrisville, Old Westbury, Oneonta, and Potsdam). Without documented and current IT strategic plans, the campuses have a greater risk that IT needs, including those for academic computing, may not be most effectively met with available funding.

Recommendations

- 1. Request that the CCIO formulate, or help campuses formulate, general standards for measuring the adequacy and accessibility of student computer resources and related IT support.*
- 2. Enlist the help of the CCIO in evaluating the best practices and the improvement opportunities identified in this report. Share any resulting findings, as appropriate, with the campuses.*
- 3. Follow up to make sure that the campuses cited in this report correct their security control weaknesses for student computer resources.*
- 4. Follow up to confirm that the campuses cited in this report perform necessary steps to establish, update, finalize or date IT strategic plans.*

(SUNY officials indicate that they have considered recommendations number 1 through number 4 and have no problem with their intent. Officials generally do not plan to implement the recommendations, however, as they consider them to be unnecessary for various reasons.)

Auditors' Comments: We continue to maintain that our recommendations should be implemented based on the conclusions in our audit report and our rejoinders presented in Appendix B, to the SUNY response.

We provided SUNY officials with a draft copy of this report for their review and comment. Their comments have been considered in the preparation of this report and are included in Appendix A. SUNY officials disagree with our audit methodology and many of the observations and conclusions in our report. Our detailed notes of rebuttal to their comments are referenced in the margin of the SUNY response and are included as Appendix B.

Within 90 days after the final release of this report, as required by Section 170 of the Executive Law, the Chancellor of SUNY shall report to the Governor, the State Comptroller and the

leaders of the Legislature and fiscal committees, advising what steps were taken to implement the recommendations contained herein, and where recommendations were not implemented, the reasons therefor.

Major contributors to this report were Bill Nealon, Robert Mehrhoff, Melissa Little, Adrean Kreig, Jessica Feltman, Melissa Clayton, and Nancy Varley.

We wish to thank the management and staff of the State University of New York for the courtesies and cooperation extended to our auditors during the audit.

Very truly yours,

Jerry Barber
Audit Director

cc: Kevin O'Donoghue
Paul Tucci
Deirdre Taylor

SUNY University Colleges and Technology Colleges

University Colleges

Brockport
Buffalo State *
Cortland
Empire State College #
Fredonia *
Geneseo *
New Paltz *
Old Westbury *
Oneonta
Oswego
Plattsburgh
Potsdam
Purchase *

Technology Colleges

Alfred *
Canton
Cobleskill *
Delhi
Maritime College *
Morrisville *

* Campuses selected for visits during this audit.

Empire State College was eliminated from our audit scope due to the uniqueness of their campus structure.

THE STATE UNIVERSITY *of* NEW YORK



November 15, 2002

Richard P. Miller, Jr.
Vice Chancellor and
Chief Operating Officer

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518 443 5804
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Mr. Jerry Barber
Audit Director
Office of the State Comptroller
State Office Building
Albany, NY 12236

Dear Mr. Barber:

As permitted under Section 170 of the Executive Law, we are enclosing our comments in response to the OSC draft report 2002-S-3 concerning selected aspects of the management of student computer resources at university colleges and technology colleges of the State University of New York.

Sincerely,

A handwritten signature in black ink, appearing to read 'RPM', written over a white background.

Enclosure

STATE UNIVERSITY OF NEW YORK SYSTEM ADMINISTRATION
RESPONSE TO OFFICE OF THE STATE COMPTROLLER
DRAFT AUDIT REPORT 2002-S-3

NOVEMBER 15, 2002

The following constitutes the formal response of SUNY System Administration to the subject undated working DRAFT report entitled Student Computer Resources at University Colleges and Technology Colleges. This response mirrors the structure of the subject report and accordingly covers the following:

- ❑ Report Background
- ❑ Report Audit Scope, Objectives and Methodology
- ❑ Report Results of Audit
- ❑ Report Recommendations

Report Background

Corrections of factual errors:

1. Campuses have both (not either/or) open and restricted computer labs depending on the purpose of the lab.
2. Virtually all (not “most”) campuses have a help desk.

*
Note
1

An annual dialogue between the campus and SUNY System Administration determines the “varying levels” of information technology support provided at each Campus; consequently the level of support is tailored to each Campus’ anticipated needs within the context of resources appropriated.

We find the use of the adjective “some” when applied to our Campuses to be too non-specific. Do you mean a few, many, several, etc.?

*
Note
1

Audit Scope, Objectives and Methodology

We found the audit scope and objectives to have merit; however, we are concerned that the audit methodology employed by the auditors was fundamentally flawed. When conducting a so-called “performance” audit, it is generally presumed that the auditors will use criteria, standards or goals against which performance will be measured. You have stated that no such standards or criteria were identified, not even those adopted by each Campus visited as part of your audit. It is common practice for auditors conducting performance audits to request the entity being audited to assert its performance goals, measures and results. This provides a basis against which to audit and develop results and recommendations. This too was not requested. We pointed out this fundamental flaw to the auditors as early as the Opening Conference that initiated the audit process. We repeated our concern when responding in writing to the auditors’ preliminary findings. We feel obliged to bring it up yet again.

*
Note
2

* See State Comptroller's Notes, Appendix B

Furthermore, had the auditors relied on either objective standards or performance goals, there would have been a basis for developing a representation letter. However, the Comptroller's auditors did not ask each Campus to assert its performance goals or measures against which to measure audit results. The letter in question requested representations as to internal controls, transactional execution, litigation, regulatory communications and irregularities, none of which was relevant to the matter at hand. In the absence of agreed-upon criteria, standards and measures, there is no way we can assure that the auditors were provided everything that is relevant to their efforts. Accordingly, we had no choice but to decline to sign the "representation letter" suggested to us in connection with this study.

*
Note
3

However, we are sure you will agree that the SUNY Campuses gave the auditors whatever they requested, and that Campus representatives responded frankly to all inquiries. Further, we responded in writing at length to each preliminary audit finding presented to us during the course of this audit.

Results of Audit

- Adequacy, Accessibility and Support

We are disappointed that the principal preliminary finding of the auditors did not make it into the draft report. We quote from your preliminary findings that "Generally, we found that most campuses had an adequate number of computer workstations to meet student needs (e.g. no waiting lines to get into labs)." You also stated in the preliminary findings that "Overall, the percentage of visibly broken computers at the ten campuses visited was less than one percent indicating that the machines were in good working order."

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Note
4

By contrast, the draft report states that you "...were unable to satisfy our audit objectives about whether campuses have adequate computer resources that are sufficiently accessible to students with necessary staff support, because we could not identify standards to serve as criteria in drawing conclusions on these matters..." You then state that neither SUNY System Administration nor its campuses has established such standards. This represents a significant departure from the written findings to which you asked us to respond.

*
Notes
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More importantly, it is simply not true. SUNY System Administration engages in a continual process of Mission Review, a follow-up tailored to each of its campuses covering many matters including information technology, that have been established in the Memorandum of Understanding maintained by SUNY with each of its Campuses. Each Campus is free to set its own tailored goals and measures. Most are participants in system-wide workshops and conferences through such organizations as the Computer Officers Association (COA), the Telecommunications Officers Association (TOA), the Faculty Access to Computer Technology Committee (FACT), and the Educational Technology Officers Association (EdTOA), as well as the organization referred to in your draft, the Council of Chief Information Officers (CCIO). We do not apply a "one size fits all" to our mix of campuses which includes doctoral-granting university centers, teaching hospitals, technical schools, traditional liberal arts and sciences colleges and specialty campuses. The expectations we maintain are tailored to each Campus' unique needs.

*
Note
5

The University is undertaking a strategic planning process, including an initiative creating a 5 year rolling plan for technology and related infrastructure. This helps our campuses establish requirements and provides us with a mechanism for measuring progress.

Your decision to include a listing of best practices and improvement opportunities is welcomed and appreciated by our Campuses.

- Security

We have made inquiries of each Campus identified in your report to determine the validity of your security assertions. If any substantive risk is determined, it will be pursued. However, each of these Campuses has disputed your assertions, and has provided us with evidence of procedures that mitigate concern.

*
Note
6

- Strategic Planning

We cannot agree with your conclusion. Each SUNY Campus has a process for maintaining a strategic technical plan, and it is updated periodically, often as part of the Mission Review discussed above. At any point in time, some plans are brand new, and others are in review or modification draft stage. We will not ascribe to an arbitrary interpretation that there must be an update every two years; we require updates when circumstances or requirements demand.

*
Note
7

RECOMMENDATIONS

We have considered your four recommendations, and while we have no problem with their intent, we believe the first two are redundant of procedures already in place to assist Campuses to identify, design and implement standards and measures. We have already looked into your concerns about security and are satisfied with the current control environment maintained by each of these campuses. We are satisfied as well with current procedures for developing and maintaining strategic plans for technology. We will, of course, address these recommendations more formally in our response to your final report.

We appreciate the opportunity to respond to your draft audit report No. 2002-S-3.

State Comptroller's Notes

1. Certain matters addressed in the draft audit report were revised or deleted from the final audit report. Therefore, some agency comments included as Appendix A may relate to matters no longer included in this report.
2. SUNY officials are incorrect in asserting that we did not request criteria of the entity being audited and that we failed to consider criteria of each campus. The SUNY System Administration Assistant Provost for Network Technology Services informed us that SUNY relies on the President of each campus to set criteria and to develop policies for student computing resources. Early during our audit, with the input of SUNY System Administration, we designed a survey questionnaire concerning student computing at each campus. The questionnaire asked how campuses determine the number of computer workstations that should be available for student computing needs and asked for the specific standards/criteria that the campuses used in making such determinations. We requested this same information again when we visited campuses. As our audit report states, such standards/criteria were also not established by the campuses. Accordingly, we expressed no audit conclusion on the adequacy of SUNY student computing resources. Instead, we pointed out the need for standards/criteria in this area.
3. We provided SUNY System Administration officials with a standard representation letter. The officials are free to propose revisions to make the letter agree with their understanding of the representations they have made during the audit. We do not believe there should have been any confusion about the lack of agreed to criteria (see note 2 above).
4. We did make certain positive observations at the campuses. However, in written responses to our preliminary findings and at the exit conference for the audit, SUNY officials objected to our audit observations because agreed to criteria had not been established. Consequently, we prepared the draft audit report without either positive observations or observations of improvement opportunities.
5. The Mission Review results in a Memorandum of Understanding (MOU) between SUNY System Administration and each campus. Each MOU contains a section on Infrastructure & Technology and in most, but not all cases, a subsection on Academic Technology. After reading each campus MOU, we concluded that the Academic Technology Section does not address goals and resources specific to the adequacy and accessibility of student computing resources. Instead, these briefly describe campus participation in certain SUNY System Administration initiatives.

6. When SUNY officials responded to our preliminary findings during our audit, they did not dispute our conclusions about computer security. Similarly, these findings were not contested at the exit conference for the audit. While SUNY officials now state that each of the campuses has provided evidence to System Administration disputing our assertions, no support for this statement has been provided.
7. While our report suggests that each plan be updated every two years, our recommendation did not prescribe the timeframe for updates.