BETA

Business & Education Technology Alliance

ONE HUNDRED POINTS OF VIEW

Report and Recommendations
for Preparing North Carolina
for Competitive Advantage
in the Knowledge Age.

Presented to:
The North Carolina Board of Education
and The North Carolina General Assembly
Joint Education Oversight Committee
January 2005

www.betanc.com

General Statute 115C-102.15 was enacted by the North Carolina General Assembly in September 2002 and creates the Business Education Technology Alliance (BETA.) This is a 27 member Alliance of key leaders including business leaders, local and state policy makers, and educators charged to ensure that the effective use of technology is built into the North Carolina School System for the purpose of preparing a globally competitive workforce and citizenry for the 21st century. It is chaired by Lt. Governor Bev Perdue who was appointed by the Chairman of the North Carolina State Board of Education (SBE.) The BETA is required to advise the SBE and report annually on its progress towards its recommendations for education technology in the public schools. It is also required to report annually to the Joint Education Oversight Committee of the North Carolina General Assembly on its recommendations for education technology in the public schools. These recommendations may include changes to any law, rule, and policy that would improve implementing education technology in the public schools.

The membership of the Business Education Technology Alliance (BETA) is comprised of stakeholders by statute from the following groups: teachers, technology directors, principals, superintendents, local board of education members, county commission members, legislators, the State Superintendent of Public Instruction or designee, the Board of Governors, the Community College System and the State Board of Education. It is required in the statute that the associations or organizations that represent the groups appointed to the commission make recommendations for the BETA to the appointing officers. While the commission membership is charged to make the recommendations, feedback has been solicited from the sponsoring members and representatives of the stakeholder groups via email list serves, the BETA web site and direct communication. In addition, BETA Chairman Bev Perdue in collaboration with North Carolina Citizens for Business and Industry President Phil Kirk initiated a fund raising project to support the work of the BETA. As a result businesses and other organizations including the North Carolina State Board of Education and the North Carolina Department of Public Instruction (NCDPI) became sponsors to the BETA and continue to provide input into its work.

The Business Education Technology Alliance (BETA) began meeting on September 8, 2003 after the appointment of its members. It met in different locations across the state to learn about the technology, education and economic needs of the various parts of North Carolina. Each meeting included presentation from businesses, education, economic development groups, organizations and other entities that had information to share specific to the work of the BETA. The BETA was also organized into four subcommittees: Vision, Infrastructure, Professional Development and Funding and Accountability. The subcommittees met outside of the full BETA meetings and the committee chairs met with the BETA staff to coordinate their work. This document represents the recommendations of the BETA after hearing the feedback from across the state, reviewing data provided by the presenting through research and development of specific topics and issues.

The purpose of this document is to report the recommendations of the Business Education Technology Alliance's (BETA) to the North Carolina State Board of Education (SBE) and the Joint Education Oversight Committee in fulfillment of its legislative charge.

The final report is presented in two parts. Part 1 is a web based format on a CD Rom that includes the International and National trends in Technology, Education and Economic Development, followed by individual North Carolina County profiles that provides data about bandwidth, number of homes connected to internet, education attainment including advanced degrees, unemployment/ employment rate, poverty level, median home income and instructional technology in schools. The support data to the Business Education Technology Alliance Recommendations are also included on the CD Rom. Part Two of the report is in printed format that includes the report executive summary and recommendations and rationale for each.

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Lt. Governor Bev Perdue as chairman of the Business Education Technology Alliance (BETA) in her directions to the Alliance at its convening meeting said: "If North Carolina is going to develop globally-competitive workers in a time when technology gives us access to "anytime, anywhere knowledge," then we will need to do three things: provide broad-band connectivity to every citizen, make it affordable, and teach our students technology literacy skills." Those three ideas became the purposes toward which the BETA makes the following recommendations.

Mission Statement

In the 21st century world of information and technology literacy, it shall be the mission of North Carolina to provide to all of its citizens the tools, resources, processes and systems to access information to solve problems, communicate clearly, make informed decisions, and construct new knowledge, products, and systems.

Vision for Technology and Information Literacy

1. The Education Cabinet should add a sixth (6th) strategic initiative to address the infusion of information and technology literacy skills in all learning environments. The initiative should also include support for the technology infrastructure needed to support this initiative and it is recommended that it be written as follows:

   Strong Information and Technology Literacy
   - Every student is prepared for life, work, and citizenship in the knowledge and information age of the 21st century
   - Every teacher is informational and technologically literate
   - Every citizen understands and possesses the skills required to succeed in the global economy
   - Every citizen has affordable universal access to effective technology

   It is further recommended that the State Board of Education adopt this additional strategic initiative.

2. The State Board of Education, the North Carolina Board of Governors and the North Carolina Community College Board should develop E-learning standards and infrastructures that provide virtual learning opportunities to students and other citizens through all North Carolina schools, universities, and community colleges.

   The PreK-12 schools should be given highest priority in the first wave of funding for and development of the E-learning standards and infrastructures. The initial focus of the State Board Education should be high schools while also researching and developing where appropriate E-learning for Middle/Junior High and Elementary schools. E-learning programs should support both teachers and students. Funding for E-learning should be a new appropriation and not come exclusively from existing funds.

The BETA is requesting that the State Board of Education assist with the establishment of a commission of potential partners including those groups or organizations who are currently e-learning providers in North Carolina, (the Cumberland County Web Academy, NC Learn, the North Carolina School for Math and Science), the North Carolina Department of Public Instruction, and perhaps other North Carolina organizations. The convening meeting will be in January 2005 after the State Board Education and the BETA chairmen identify an individual who is knowledgeable of E-Learning to serve as it's chair. The commission is encouraged to evaluate the existing the e-learning programs that are currently being used in North Carolina. The commission will deliver a complete report to the BETA and the SBE regarding implementation, staffing and funding details no later than June 1, 2005.

3. The State Board of Education should study and identify the types of resources needed to operate schools designed to meet the needs of 21st century learners. The current system has been periodically revised; however, a comprehensive revision is recommended to incorporate the funding and resources needed to support the use of technology infrastructures as well as instructional technology.

4. The BETA will coordinate the establishment of a coalition of stakeholder associations or organizations including business and education groups to develop a marketing plan to educate the public about the impact of technology on North Carolina's economic future. In the course of developing this plan, a statewide poll to determine the citizens' perspective about the use of technology and its impact on the quality of life, the workforce and education for all citizens should also be conducted.

Infrastructure for Technology and Information Literacy

5. The NC Rural Economic Development Center and e-NC in collaboration with representatives from Local Education Agencies, the University of North Carolina System and the Community College System should complete a feasibility study on developing regional education networks that are centrally managed to provide and sustain broadband connectivity to individual students and teachers in schools, community colleges and universities.

The study should include an evaluation of existing technology infrastructures, such as the statewide NC Research and Education Network or regional infrastructure like Winston-Net. These state of the art infrastructures may be capable of supporting growth in traffic and thus serve as a backbone infrastructure for delivering high speed access to underserved regions.

6. The State Board of Education and the State Chief Information Officer should ensure that the State Technology Education Plan which establishes criteria for Local Education Agency (LEA) School Technology Plans includes a baseline template for:

    1. technology infrastructure including broadband connectivity, personnel recommendations and other resources needed to operate effectively from the classroom desktop to local, regional and state networks, and

    2. an evaluation component that provides for local education agencies accountability for maintaining quality upgradeable systems.

    It is also recommended that the North Carolina Department of Public Instruction (NCDPI) hold regional workshops for LEAs to provide guidance in developing their School Technology Plans that meet the criteria established in the State Technology Plan. Further, the NCDPI should randomly check the LEA School Technology Plans to ensure they are implementing their plans as approved every two years. The NCDPI should report to the SBE and the State Chief Information Officer (CIO) which LEAs are out of compliance with implementing their plans including the reasons why they are out of compliance and a recommended plan of action to support the LEA in carrying out its plan.

7. The NCDPI should develop or revise its state portal of web resources to include building needs, sample floor plans, sample technology plans and other resources needed to support LEAs in building schools with technology infrastructure for the 21st century.

8. The General Assembly should create a State Central Infrastructure Office that includes the collection and management of information for technology, water, sewer and other utility infrastructures needed to assist communities to become and remain economically viable. This office should report annually to the General Assembly and may advise the Governor on the infrastructure needs of the state.

9. The North Carolina Board of Science and Technology and the North Carolina Progress Board are encouraged to provide an annual report by county on the status of trends that reflect the impact of education on economic growth for the 21st century. This report should be available for citizens and should contain information about the status of their county with regard to education and economic growth.

Professional Development for Technology and Information Literacy

10. The State Board of Education (SBE) should create a state portal of high quality professional development resources for PreK-20 educators from a wide variety of reputable sources. This portal should include professional development courses available from community colleges, universities and other professional development providers.

11. The NC State Board of Education (SBE), North Carolina Board of Governors, and the North Carolina Community College system should incorporate information and technology literacy as an integral part of education courses and/or standards for teachers and administrators in preparation programs.

12. The Education Cabinet and the State Board of Education (SBE) should create (or adopt) a framework such as that included in the Z. Smith Reynolds Report on Professional Development, dated November 2004, for analyzing effective professional development programs to ensure compatibility and applicability to instructional programs and resources used in the classroom.

13. The State Board of Education (SBE) should provide and advocate for flexibility in funding, and other resources necessary for teachers to be able to participate in professional development opportunities at a convenient time and location as well as provide opportunities that are job embedded.

Technology and Funding for Technology and Information Literacy

14. The State Board of Education (SBE) should increase communication with the members of the General Assembly, Superintendents, Finance Officers and Technology Directors to clarify the uses of the School Technology Fund. The communication should include information about the allotments, expenditures and encumbrances in a matrix that provides a fair comparison between Local Education Agencies (LEAs).

15. The State Board of Education (SBE) should determine the total amount of funds needed for the recurring total cost of ownership to maintain and upgrade the LEA School Technology Plans. This should include personnel costs for both technical and instructional needs so that a 3 to 5 year budget plan can be developed for the General Assembly.

16. The General Assembly should consider all legal and fair incentives and legal and fair methodologies (ie: private sector provided, public/private partnerships, or public sector provided) for providing scalable broadband connectivity to all schools and communities at an affordable rate. A state and local statutory environment should exist that encourages both public and private investment in broadband infrastructure, particularly in underserved areas.

17. The General Assembly should establish two public school funds for school technology. One fund should support school technology infrastructure (for example, line charges, network cabling and servers) and the second should support instructional technology (for example computer hardware, software, peripherals and staff development). The funds should be developed based on the budget needs identified in the LEA school technology plans for infrastructure and instructional technology as recommended by the School Technology Commission and approved by the State Board of Education (SBE) for accountability and state budget planning.

18. The General Assembly should provide funds to upgrade the LEAs to the standards required for NCWISE.

19. The NC Department of Public Instruction should take responsibility for providing assistance with E-rate applications and ensure adequate staffing to carry out the responsibility. The staffing should include a minimum of one full-time coordinator who has technical knowledge and skills related to funding technology. Schools systems should be notified of the person or office assigned the responsibility. Annual reports that compare eligibility and success should be prepared and submitted to the State Board of Education.

20. The State Board of Education should initiate the development of a coalition of state level associations and their national counterparts including the State Board of Education (SBE), the North Carolina Association of Educators (NCAE), the North Carolina Association of School Administrators (NCASA), North Carolina School Boards Association (NCSBA), North Carolina Association for Educational Communications and Technology (NCAECT), North Carolina School Library Media Association (NCSLMA) and other appropriate groups to advocate for improving the E-rate process for schools.

**Business Education and Technology Alliance
2005 Report to the State Board of Education and Joint
Education Oversight Committee**

Introduction

The Business and Education Technology Alliance is dedicated to fostering a learning landscape that promotes student achievement, business success, economic stability, and lifelong learning for the citizens of North Carolina.

Information technology as a tool for enhancing teaching and learning can expand the horizons of education around the world to enrich the resources of knowledge.

Educators, students, business, community, and government leaders are united in the belief that a technologically rich curriculum and a curriculum that is supported by robust and near and next generation technology is an essential component in preparing today's student to function as a knowledge worker in the new millennium. North Carolina must prepare its graduates to be productive, active, and successful in a global economy.

To achieve this vision, North Carolina must be prepared to provide technology literacy skills to its students and citizens anytime and anywhere using a variety of instructional approaches to accommodate individual and schedule differences.

Professional development, how and what citizens are taught, and the very climate and structure of education must be transformed. Professional development is the basis for ensuring students, citizens, and teachers have productive learning experiences. Students deserve outstanding course content delivered by highly qualified teachers whose practice embraces the best technology can bring to learning.

The Vision

We live in a knowledge society that increasingly depends on technology. Informed, productive, and responsible citizens of that society must be technology literate. Such literacy is vital to individual, county, state, national, and international economic prosperity.

Knowledge about computers and their applications is not sufficient. Citizens need to understand technology in a broader context if they are to assess its power and its limitations. The promise of North Carolina's future lies in people's ability to use, manage, and understand technology.

Citizens who understand and are comfortable with the concepts and workings of modern technology are better able to participate fully in society and in the global marketplace.

North Carolina pledges that graduates from its K-12 schools, community colleges, and universities and the state's general citizenry will possess the following attributes by the year 2025:

- Understand the ethical, cultural, and societal issues related to information and technology use.
- Use information technology strategies and products to locate, evaluate, and collect information from a variety of sources.
- Understand, manage, and create effective oral, written, and multimedia communication in a variety of forms and contexts for multiple audiences.
- Evaluate, select, and use new information resources and technological innovations based on their appropriateness for specific tasks.
- Use information technology resources for solving problems and making informed decisions.
- Use information and technology tools to enhance learning, increase productivity, and promote creativity.
- Adapt and transfer strategies for seeking information among various technologies.
- Contribute positively to the learning community and to society by recognizing the importance of information and technology to a democratic society.
- Pursue knowledge throughout life, using it for the betterment of self and mankind.

Mission Statement

In the 21st century, an age requiring information and technology literacy, it shall be the mission of North Carolina to provide to all of its citizens the tools, resources, processes and systems to access information to solve problems, communicate clearly, make informed decisions, and construct new knowledge, products, and systems.

Vision for Technology and Information Literacy

1. The Education Cabinet, composed of the Chairman of the State Board of Education, the Superintendent of Public Instruction, the President of the North Carolina Community College System, the President of the University of North Carolina, the President of North Carolina Independent Colleges and Universities and led by the Governor should add to its five (5) strategic initiatives, a sixth (6th) strategic initiative to address the infusion of information and technology literacy skills in all learning environments. The initiative should also include support for the technology infrastructure needed to support this initiative and it is recommended that it be written as follows:

   Strong Information and Technology Literacy
   - Every student is prepared for life, work, and citizenship in the knowledge and information age of the 21st century

- Every teacher (preK-20) is informational and technologically literate
- Every citizen understands and possesses the skills required to succeed in the global economy
- Every citizen has affordable universal access to effective technology

It is further recommended that the State Board of Education adopt this additional strategic initiative.

Rationale

The Education Cabinet includes the Governor, the Chairman of the State Board of Education, the Superintendent of Public Instruction, the President of the North Carolina Community College System, the President of the University of North Carolina, and the President of North Carolina Independent Colleges and Universities. The cabinet established goals, priorities and performance targets for making North Carolina First in America by 2010 and reports progress towards achieving these goals in the annual North Carolina Report Card. The strategic initiatives are as follows:

High Student Performance
- Every Student in School and Making Strong Progress
- Every Graduate Ready for College and Work
- Every School Accountable for Student Learning

Every Child Ready to Learn
- Every Child with Access to Quality Child Care
- Every Parent a Good First Teacher
- Every Child Ready to Begin School

Safe, Orderly, and Caring Schools
- Every School Free of Drugs, Weapons, and Disruption
- Every School with Adequate Facilities and Materials
- Every Student Known and Cared For
- Every Family Welcomed

Quality Teachers and Administrators
- Every Teacher Competent, Caring, and Qualified
- Every Principal a Leader
- Every School a Good Place to Work and Learn

Strong Family, Business, and Community Support
- Every Family Involved in their Child's Learning
- Every Community Involved in Children's Learning
- Every Child with Access to Quality Health Care

The Cabinet should include this initiative as an additional goal and strategic priority due to the integral role of information and technology literacy skills in North Carolina's economic success.

2. The State Board of Education (SBE), the North Carolina Board of Governors and the North Carolina Community College Board should develop E-learning standards and infrastructures that provide virtual learning opportunities accessible to students and other citizens through all North Carolina schools, universities, and community colleges.

    The PreK-12 schools should be given highest priority in the first wave of funding for and development of E-learning. The initial focus of the State Board Education should be high schools while also researching and developing where appropriate E-learning for Middle/Junior High and Elementary schools. E-learning programs should support both teachers and students. Funding for E-learning should be a new appropriation and not come exclusively from existing funds.

    The BETA is requesting that the State Board of Education assist with the establishment of a commission of potential partners including those groups or organizations who are currently e-learning providers in North Carolina, (the Cumberland County Web Academy, NC Learn, the North Carolina School for Math and Science), the North Carolina Department of Public Instruction, and perhaps other North Carolina organizations. The convening meeting will be in January 2005 after the State Board Education and the BETA chairmen identify an individual who is knowledgeable of E-Learning to serve as its chair. The commission is encouraged to evaluate the existing the e-learning programs that are currently being used in North Carolina. The commission will deliver a complete report to the BETA and the SBE regarding standards, implementation, staffing and funding details no later than June 1, 2005.

Rationale

All states have equal protection and education clauses in their constitutions that require them to provide for a free public education system. On-line learning, E-learning or virtual schools are vehicles for:

- assisting states in meeting their constitutional mandate for a free public education system for all.
- providing educational opportunities for all citizens, representing geographic, socio-economic and demographic diversity.

On-line learning, E-learning or virtual schools are also a natural and necessary development of the information age and the development of technology and technology tools. If accomplished at the expected level, this will be an approach that holds promise for expanding high quality education for all of North Carolina's citizens leading to an improved economy.

3. The State Board of Education (SBE) should study and identify the types of resources needed to operate schools designed to meet the needs of 21st century learners. The current system has been periodically revised; however, a comprehensive revision is recommended to incorporate the funding and resources needed to support the use of technology infrastructures as well as instructional technology.

Rationale

The infusion of information and technology literacy into schools requires access to technology tools and resources that support students in developing the skills needed to access information to solve problems, communicate clearly, make informed decisions, and construct new knowledge, products, and systems. The SBE has provided guidance for system-wide or Local Education Agency (LEA) needs with regard to staffing, curriculum, and classroom needs through the Basic Education Plan (BEP) and periodically has made revisions to that plan. However, with the ABCs Plus and No Child Left Behind (NCLB), accountability has moved from the system and school level to the individual student. Since accountability is based on the child, then funding and resources should also be aligned with that requirement.

The accountability requirements along with the rapid development of technologies have and continue to change the needs of schools and students. These combined changes impact the way we build, staff, and fund schools to achieve high quality learning environments for all students. The Local Education Agency (LEA) or district funding model met the needs of traditional education; however, it is not sufficient to meet the needs of the 21st Century learner. The new funding model should be driven by and based on the needs of the individual student.

While the recommendation seeks a comprehensive review of resources needed, there are several projects of note where information and technology literacy and technology tools, resources, processes and systems have been implemented. These projects include those such as the NCEITA Technology Demonstration Projects and the SBE Impact Grant Schools where federal grants are provided to support the full implementation of the school technology plan. Examples of other schools that have programs or infrastructure to support technology include but are not limited to, New Hope Elementary in Orange County, Southeast Raleigh High School in Wake County, and Mary Scroggs Elementary in Chapel Hill,

4. The BETA will coordinate the establishment of a coalition of stakeholder associations or organizations including business and education groups to develop a marketing plan to educate the public about the impact of technology on North Carolina's economic future. In the course of developing this plan, a statewide poll to determine the citizens' perspective about the use of technology and its impact on the quality of life, the workforce and education for all citizens should also be conducted.

Rationale

The importance of technology and technology literacy for North Carolina's future cannot be overstated. A marketing plan that tells the story of what technology and technology literacy means to every single citizen and to the state's economic future must be promoted. This investment and effort will garner the grass roots understanding that is needed in order for the citizenry to support and sustain the needed investment by the state in technology infrastructures and literacy.

Infrastructure for Technology and Information Literacy

5. The NC Rural Economic Development Center and e-NC in collaboration with representatives from Local Education Agencies, the University of North Carolina System and the Community College System should complete a feasibility study on developing regional education networks that are centrally managed to provide and sustain broadband connectivity to individual students and teachers in schools, community colleges and universities.

   The study should include an evaluation of existing technology infrastructures, such as the statewide NC Research and Education Network or regional infrastructure like Winston-Net. These state of the art infrastructures may be capable of supporting growth in traffic and thus serve as a backbone infrastructure for delivering high speed access to underserved regions.

Rationale

Planning for the future needs of infrastructure including connectivity is essential for North Carolina's economic development. The future for technology and its impact can only be projected and it is essential that the feasibility of developing systems that support networks for the present as well as the future be studied. By investigating the function and operation of networks that support broadband technology, the state can determine funding needs and maximize current funds that will sustain the networks and judiciously utilize the state's dollars.

Typically, each school system, university and community college makes its own arrangements for Internet service, information databases, for software licenses, etc. Since they access this service as individual contractors, they are not able to generate sufficient leverage to be able to influence the market to impact affordability. Acting as a network that encompasses the entire region there is greater opportunity to influence the market so that equitable access is available to all members of the community including schools, universities, community colleges, local governments and public entities.

A regional network may also provide consistency in safety and security via network policies and management. The goal should be to have the capacity for broadband

connectivity to be extended to each student's personal computer or computing device and other community services. One example of a community owned network is Winston-Net in Winston Salem, NC.

Winston-Net is a community owned fiber optic network that connects education, museums, libraries, government and non-profit institutions together in a unique electronic network. It is operated for the benefit of the community by a not-for-profit organization under the Winston-Salem Chamber of Commerce. It is sustained through establishing partnership agreements with network service providers.

The unique feature of Winston-Net is that it is a network of, by and for the members of this community. One of the important keys to this type of inter/intranet is a community wide authentication system and a community-owned high speed, fiber optic network. The authentication system provides the surety that those using the resources are who they claim to be. The fiber-optic network assures that the community owns the technology, which will be essential for its future growth and success.

6. The State Board of Education (SBE) and the State Chief Information Officer should ensure that the State Technology Education Plan which establishes criteria for Local Education Agency (LEA) School Technology Plans includes a baseline template for:

   1. technology infrastructure including broadband connectivity, personnel recommendations and other resources needed to operate effectively from the classroom desktop to local, regional and state networks, and

   2. an evaluation component that provides for local education agencies accountability for maintaining quality upgradeable systems.

It is also recommended that the North Carolina Department of Public Instruction (NCDPI) hold regional workshops for LEAs to provide guidance in developing their School Technology Plans that meet the criteria established in the State Technology Plan. Further, the NCDPI should randomly check the LEA School Technology Plans to ensure they are implementing their plans as approved every two years. The NCDPI should report to the SBE and the State Chief Information Officer (CIO) which LEAs are out of compliance with implementing their plans including the reasons why they are out of compliance and a recommended plan of action to support the LEA in carrying out its plan.

Rationale

The current requirements for the Local Education Agency (LEA) School Technology Plans do not specifically include (and require) individual school technology plans. Each LEA develops its plan based on the State School Technology Plan adopted by the SBE as required in 115C-102.6A. The State Information Technology Services (ITS) as required in Senate Bill 991 passed during the 2004 session of the General Assembly sets the technical standards and the NCDPI is responsible for the instructional aspects

of the State Technology Plan on which LEA School Technology Plans are based. The technical and instructional aspects of the LEA School Technology Plans should be in compliance with the approved State Technology Plan.

In review of the statutory requirements, the standards for the components identified in the recommendations are not included but considered by the BETA members as necessary to support information and technology literacy for all students. In addition, providing regional workshops for the LEAs will ensure that a review of changes to the 2005 State Technology Plan are incorporated into the revised 2005 LEA School Technology Plans.

7. The NCDPI should develop or revise its state portal of web resources to include building needs, sample floor plans, sample technology plans and other resources needed to support LEAs in building schools with technology infrastructure for the 21st century.

   Rationale

   General Statute GS 115C-521 was amended in 1996 with regard to the SBE's authority to set standards and substituted the word "guidelines" for the word "standards" for school construction. The statute also included a requirement for the NCDPI to revise and update its "guidelines" to include the types of construction including technology infrastructure. However, due to the exponentialism of technology, the guidelines need to be revised based on the needs for current school construction so that the technology infrastructure is designed to support current, upgradeable and scalable systems.

8. The General Assembly should create a State Central Infrastructure Office that includes the collection and management of information for technology, water, sewer and other utility infrastructures needed to assist communities to become and remain economically viable. This office should report annually to the General Assembly and may advise the Governor on the infrastructure needs of the state.

   Rationale

   Technology is as essential to the economic development of the state as highways, water, and sewer. By making this distinction, the state is setting a precedent to establish connectivity across the state as a basic economic need and available to all parts of the state and every public and private building as well as homes.

9. The North Carolina Board of Science and Technology and the North Carolina Progress Board are encouraged to provide an annual report by county on the status of trends that reflect the impact of education on economic growth for the 21st century. This report should be available for citizens and should contain information about the status of their county with regard to education and economic growth.

Rationale

Tracking Innovation Index 2003 that was prepared by the North Carolina Board of Science and Technology provides a report on the state of North Carolina's Innovative Economy. The North Carolina Progress Board's role is to set broad directions for the state and set goals to measure the state's progress in meeting those goals as well as report any progress to state leaders and residents. There is also the NC Report Card for schools, which includes the number of computers connected to the Internet per schools. While all of these reports are extremely valuable in the information they provide, there is a need to provide broader information to the average citizen about their individual county.

Citizens should be able to compare their community to the state and nation on specific indicators such as investment in school technology, unemployment, poverty, education status and cost of connectivity. The data needed are currently provided in a variety of formats and maintained by multiple agencies; however, it would be helpful to provide this information in a user-friendly format for the average citizen. This would provide some additional measures and maintain accountability to taxpayers and citizens about the connection between education and the economy for their individual community as compared to the rest of the state and nation.

Professional Development for Technology and Information Literacy

10. The State Board of Education (SBE) should create a state portal of high quality professional development resources for PreK-20 educators from a wide variety of reputable sources. This portal should include professional development courses available from community colleges, universities and other professional development providers.

    Rationale

    A state portal will provide LEAs and other educators with a single source for identifying professional development opportunities for high quality programs and how they may be utilized. This is important for quality issues including time, skill alignment, and utilization of resources. Some of the current professional development resources include programs such as ExplorNet, LearnNC, Cumberland County Web Academy, and those offered through the Center for Leadership Development.

11. The NC State Board of Education, the North Carolina Board of Governors and the North Carolina Community College Board should incorporate information and technology literacy as an integral part of education courses and/or standards for teachers and administrators in preparation programs.

Rationale

The in-service needs of educators to upgrade skills in using rapidly changing technology, learning new methods for instruction and using new technologies is a time consuming and expensive venture. Standards and courses for those in pre-service programs as well as advanced degree programs ensure that those beginning educators and those seeking advanced degrees are entering the system prepared for their roles.

12. The Education Cabinet and the State Board of Education (SBE) should create (or adopt) a framework such as that included in the Z. Smith Reynolds Report on Professional Development, dated November 2004, for analyzing effective professional development programs to ensure compatibility and applicability to instructional programs and resources used in the classroom.

Rationale

There is a need to provide ongoing high quality professional development that improves learning for the 21st Century. The increased accountability for improving student achievement and the availability of professional development opportunities makes it more incumbent for the SBE to establish standards to provide guidance to teachers, administrators and other educators. This framework of standards should be research based and aligned with and support the policies for curriculum and instruction as well as the criteria for licensure.

13. The State Board of Education should provide and advocate for flexibility in funding, and other resources necessary for teachers to be able to participate in professional development opportunities at a convenient time and location as well as provide opportunities that are job embedded.

Rationale

LEAs currently have flexibility in using existing funds to provide professional development; however, there is a need to have dedicated funds for professional development to support educators when learning new information and technology literacy skills. In addition, learning new skills when they directly relate to enhancing one's current role ensures application of new knowledge and skills. The challenge is finding the time to provide professional development to educators within the context of the working day. The Funding Committee recommendations may offer one solution, which may eliminate competition for limited resources.

Technology and Funding for Technology and Information Literacy

14. The State Board of Education (SBE) should increase communication with the members of the General Assembly, Superintendents, Finance Officers and Technology Directors to clarify the uses of the School Technology Fund. The communication should include information about the allotments, expenditures and encumbrances in a matrix that provides a fair comparison between Local Education Agencies (LEAs).

    Rationale

    The General Assembly has reduced funding to the School Technology Fund for the past five years. While there was an average of $130.00 per child spent from various sources for technology in North Carolina (NCDPI), the School Technology Fund provided only $7.00 per child this past fiscal year. The national recommendation for technology spending according to Allan Odden from the Consortium for Policy Research in Education in the Wisconsin Center for Education Research is $250.00 per child.

    Several issues are revealed about this topic. One is that North Carolina has experienced tight economic times for the last few years limiting available resources. A second issue is that there has been a consistent fund balance in the School Technology Fund for the last five years. This may create the perception that funds are not being expended each year. The School Technology Fund was established to provide LEAs with a consistent source of funds that could be carried over each year. The fund also includes collections from fines and forfeitures; however these funds may vary from year to year. The funds are used to cover telecommunications costs during the summer months, matching funds for E-rate, and a consolidation of funds for large projects. The funds are also to be spent in accordance with LEA technology plans that are based on standards set formerly by the Information Resource Management Commission (IRMC) and now the Information Technology Services Agency (ITS.) As a result of the decreased funds, LEAs have not been able to depend on the funds due to uncertainty of funding.

    Providing consistent communication between the parties mentioned in the recommendation will clarify how the funds are being utilized and the needs the LEAs have for technology.

15. The State Board of Education (SBE) should determine the total amount of funds needed for the recurring total cost of ownership to maintain and upgrade the LEA School Technology Plans. This should include personnel costs for both technical and instructional needs so that a 3 to 5 year budget plan can be developed for the General Assembly.

Rationale

It is estimated that $150.00 per child is needed to fully implement all LEAs technology plans. The members of the General Assembly can plan more effectively if they have a thorough knowledge of the budget requirements for technology. The technology plans will be aligned with standards set by Information Technology Services (ITS) and approved by the State Board of Education (SBE) as required by this past session of the General Assembly resulting in an increased measure of accountability.

16. The General Assembly should consider all legal and fair incentives and legal and fair methodologies (ie: private sector provided, public/private partnerships, or public sector provided) for providing scalable broadband connectivity to all schools and communities at an affordable rate. A state and local statutory environment should exist that encourages both public and private investment in broadband infrastructure, particularly in underserved areas.

Rationale

It is the responsibility of the state to ensure that all schools have equal access to connectivity and that the infrastructure meets established standards. By developing a fund that provides incentives or matching funds for telephony, wireless, power or cable providers to provide broadband connectivity in hard to reach or under served communities, then there would be assurance that all citizens as well as schools have affordable connectivity. One example of incentives may be a tax credit to encourage the deployment of broadband connectivity to underserved areas or Tier One and Tier Two counties.

17. The General Assembly should establish two public school funds for school technology. One fund should support school technology infrastructure (for example, line charges, network cabling and servers) and the second should support instructional technology (for example computer hardware, software, peripherals and staff development). The funds should be developed based on the budget needs identified in the LEA school technology plans for infrastructure and instructional technology as recommended by the School Technology Commission and approved by the State Board of Education (SBE) for accountability and state budget planning.

Rationale

The current School Technology Fund can be used for infrastructure and instructional technology. As a result, districts are using the fund in various ways thus creating competition between instructional and infrastructure needs. By creating two separate funds, one for instructional technology and one for infrastructure, it will eliminate the competition between the two needs. By requiring that the funds be based on the budgets in LEA School Technology Plans, the state can plan for annual funding needs more effectively.

18. The General Assembly should provide funds to upgrade the LEAs to the standards required for NCWISE.

Rationale

The current relocation of NCWISE to Information Technology Services (ITS) has not alleviated the burden of expense to the LEAs as they are required to provide the cost to upgrade to this state mandated system.

19. The NC Department of Public Instruction should take responsibility for providing assistance with E-rate applications and ensure adequate staffing to carry out the responsibility. The staffing should include a minimum of one full-time coordinator who has technical knowledge and skills related to funding technology. Schools systems should be notified of the person or office assigned the responsibility. Annual reports that compare eligibility and success should be prepared and submitted to the State Board of Education.

Rationale

E-rate was established to provide reimbursements to schools and libraries for line charges and connectivity, primarily in rural areas. The application process for the federally regulated E-rate reimbursement program is often difficult to negotiate. In addition, it is a reimbursement program which means funding is always a year behind. According to reports for E-rate, NCDPI created a full time position to coordinate E-rate for the state in 2001. The chart below shows that the reimbursements to North Carolina increased from $21,468,272.72 in FY2001 to $41,705,205.83 in FY 2002 after the full time position was created.

Fund Year	DISTRICTS & SCHOOLS
1998	$23,932,613.57
1999	$30,995,386.46
2000	$23,257,827.90
2001	$21,468,272.72
2002	$41,705,205.83
2003*	$47,292,000.00
2004**	$19,435,036.87

*funding continuing for FY 2003
**funding continuing for FY 2004

When the full-time position was created, a number of things occurred. A process to inform school systems about e-rate reimbursements was established. A webpage was set-up, a listserv created, a person with technical knowledge and skill was available to help schools with questions and with the applications, on site assistance was provided

to school systems and training was provided across the state. In essence by having a full-time position there was a focus on the E-rate program. This is a valuable resource that provides needed funding to eligible schools and maintaining a full time position for this program would ensure that the state captures needed resources.

20. The State Board of Education (SBE) should initiate the development of a coalition of state level associations and their national counterparts including the State Board of Education (SBE), the North Carolina Association of Educators (NCAE), the North Carolina Association of School Administrators (NCASA), North Carolina School Boards Association (NCSBA), North Carolina Association for Educational Communications and Technology (NCAECT), North Carolina School Library Media Association (NCSLMA) and other appropriate groups to advocate for improving the E-rate process for schools.

Rationale

There is a need for the organizations that represent schools in North Carolina and across the nation to proactively seek assistance on behalf of schools to improve the service of E-rate, a federally managed program. The regulations have become increasing burdensome especially with the most recent changes of accounting for the program. Schools have experienced delays in funding applications, changing rules and other issues that are preventing them from receiving maximum benefit from this program. It is federally managed and an organized effort needs to be mounted to help alleviate these problems.

GS 115C-102.15:
BUSINESS AND EDUCATION TECHNOLOGY ALLIANCE

SECTION 7.27.(a) There is created the State Board of Education's Business and Education Technology Alliance.

SECTION 7.27.(b) The Business and Education Technology Alliance shall be composed of 27 members who have knowledge and interest in ensuring that the effective use of technology is built into the North Carolina School System for the purpose of preparing a globally competitive workforce and citizenry for the 21st century. These members shall be appointed as follows:

1) The Superintendent of Public Instruction or his or her designee;

2) One member of the State Board of Education appointed by the chair of the State Board of Education;

3) One parent of a public school child appointed by the State Board of Education after receiving recommendations from the North Carolina State Parent Teacher Association;

4) Two members of the Senate appointed by the President Pro Tempore of the Senate;

5) Two members of the House of Representatives appointed by the Speaker of the House of Representatives;

6) One member of a local board of education who represents a local education agency (LEA) that has successfully incorporated technology into its schools, who is appointed by the Governor, after receiving recommendations from the North Carolina School Boards Association;

7) One member of a local board of education who represents a local education agency (LEA) that has limited access to technology, who is appointed by the Governor, after receiving recommendations from the North Carolina School Boards Association;

8) Two at-large members appointed by the Governor;

9) One representative of business and industry appointed by the State Board of Education after receiving recommendations from the North Carolina Citizens for Business and Industry;

10) Four members appointed by the President Pro Tempore of the Senate. In making these appointments the President Pro Tempore is encouraged to consider appointing a local school superintendent or a local school administrator who represents a local education agency that has limited access to technology, a school principal who works in a school that successfully incorporates technology into its instructional program, a school teacher who works in a school with limited access to technology, and a technology director

who represents a local education agency (LEA) that has successfully incorporated technology into its schools. Professional associations representing school administrators and professional associations representing teachers may recommend appointees to the President Pro Tempore;

11) Four members appointed by the Speaker of the House of Representatives. In making these appointments the Speaker of the House of Representatives is encouraged to consider appointing a local school superintendent or a local school administrator from a local education agency that has successfully incorporated the use of technology into its instructional programs, a school principal working in a school with limited access to technology, a school teacher who has successfully incorporated the use of technology into classroom instruction, and a technology director who represents a local education agency (LEA) that has limited access to technology. Professional associations representing school administrators and professional associations representing teachers may recommend appointees to the Speaker of the House of Representatives;

12) One chancellor or his or her designee of institutions of higher education who has demonstrated effective and innovative use of technology for education, appointed by the Board of Governors of The University of North Carolina;

13) One president or his or her designee of the Community College System who has demonstrated effective and innovative use of technology for education, appointed by the State Board of Community Colleges;

14) Two county commissioners, one of whom represents a county that has successfully incorporated technology into its schools and community, who are appointed by the State Board of Education, after receiving recommendations from the North Carolina Association of County Commissioners;

15) Two representatives of technology businesses who have either successfully developed innovative technology programs for education or have partnered with a local education agency (LEA) to develop a technology-based education environment in that LEA, who are appointed by the State Board of Education, after receiving recommendations from North Carolina Electronics and Information Technologies Association and the North Carolina Citizens for Business and Industry; and

16) One representative of the Information Resource Management Commission appointed by the Commission's Chair.

SECTION 7.27.(c) Each of the following organizations or agencies shall select a representative from its organization or agency to serve as a nonvoting member to the Alliance. These members shall provide information to the Alliance about technology in North Carolina: Rural Internet Access Authority; Information and Technology Services, North Carolina Department of Public Instruction; Office of State Information Technology Services, Office of the Governor.

SECTION 7.27.(d) Members of the Business and Education Technology Alliance shall serve for two-year terms. All members of the Alliance shall be voting members unless they are designated as ex officio members. The officer who made the initial appointment shall fill vacancies in the appointed membership. The member of the State Board of Education appointed to the Alliance by the chair of the State Board of Education shall serve as chair of the Alliance.

SECTION 7.27.(e) Members of the Business and Education Technology Alliance shall receive travel and subsistence expenses in accordance with the provisions of G.S. 120-3.1, 138-5, and 138-6.

SECTION 7.27.(f) The Business and Education Technology Alliance shall:

(1) Advise the State Board of Education on the development of a vision for a technologically literate citizen in 2025. This vision should contain the educational standards needed to accomplish that vision, the educational uses of technology to accomplish that vision, and a plan for educating the community, educators, and business people about the vision and educational uses of technology. The vision and the plan for educating the public about the vision may include:

    a) Various models and frameworks of the high quality and effective use of technology for education purposes including those students who have not learned with traditional approaches. The models may include the Cumberland County Schools Web Academy, the Virtual High School, and Nova Net.

    b) Opportunities for teachers to experience the uses of technology in work and business settings, which is the world for which they are preparing students to work.

    c) Production of multimedia presentations such as videos, commercials, and publications that help citizens, students, and educators see and understand the current and future power of technology for educating our children and impacting our lives.

(2) Advise the State Board of Education on the development of a technology infrastructure, delivery, and support system that provides equity and access to all segments of the population in North Carolina. The infrastructure, delivery, and support system may include:

    a) Opportunities for access to high-speed connectivity to the Internet which impacts on the quality of instruction that can be provided for students at school and in the community.

    b) Technology networks that enable communities to encompass the student and his/her family while maintaining the rights to privacy for all citizens, i.e., a social service, health, education, and mental health network. This network will increase collaboration among agencies and provide a coordinated, systemic service approach.

   c) Continue to evaluate the status of current technology systems and structures from the State to local level as it relates to employing technology for improving instruction.

   d) Continue to provide access to technology equipment and infrastructure at home, school, and in the community such as extended hours of operation for schools and other community facilities and on-loan laptop computers for student and parent use.

   e) Continue to develop surveys that provide information about the types and results of technological tools utilized by teachers, students, and others at school, in the community, and home.

   f) Sufficient personnel to maintain the operation of information technology systems.

   g) Coordination with regional economic development planners to position local education agencies as an integral part of economic development.

(3) Advise the State Board of Education on the development of professional development programs for teachers to successfully implement and use technology in public schools for all students. These programs should also develop their leadership skills so that they can use technology as a tool to support the rethinking of the core business of schools: student learning. The professional development programs may include:

   a) Models of staff development from the State that are considered state of the art, support the vision for technology, and that could be used by local districts to train their staffs.

   b) Designated time for professional development for using technology as well as skills for using technology as a delivery for curriculum and instructional programs.

   c) Collegial planning time so that colleagues can coach and support each other in learning new ways in which to think about instruction.

   d) Teacher and administrator preparation and other programs that ensure the Department of Public Instruction's Technology Foundation Standards for Teachers and Administrators in higher education are incorporated into classroom instruction.

   e) Training teachers with skill sets to teach technical courses that are in growing demand to function at home and work.

   f) Increase opportunities for sharing best practices in all areas of instruction.

   g) Increase opportunities for learning how to use technology to customize instruction for all students.

   h) Increase opportunities for learning how to use technology to diagnose student learning.

(4) Advise the State Board of Education on the development of a Funding and Accountability system to ensure statewide access and equity. The Funding and Accountability system may include:

   a) Public-private partnerships.

   b) Identification of resources and the cost of those resources.

   c) Funding to keep hardware/software current.

    d) Evaluating progress toward realizing the technology vision.

    e) Evaluating the impact of various technology initiatives on alleviating some of the State's education and economic development problems.

    f) Incentives to encourage risk taking and innovative uses of technology.

    g) Funding for only those initiatives that are well-planned, demonstrate high commitment, and have a solid evaluation component.

(5) Report annually to the State Board of Education on the progress of the Alliance's recommendations for education technology in the public schools on the first Friday in December. This report may contain a summary of recommendations for changes to any law, rule, and policy that would improve implementing education technology in the public schools.

(6) Report annually to the Joint Legislative Education Oversight Committee in the General Assembly on the recommendations for education technology in the public schools on the first Friday in January. This report may contain a summary of recommendations for changes to any law, rule, and policy that would improve implementing education technology in the public schools.

SECTION 7.27.(g) Federal funds and private funds may be used to support the Alliance. State funds shall not be used to support the Alliance.

Presenters to the Business Education Technology Alliance

Ian Jukes, *Future Trends Speaker, Author of Windows on the Future*

Joan Myers, *Executive Director, NCEITA*

John Boling, *Executive Director, SAS in Schools*

Charles Hayes, *Economic Development Partnerships*

Robert McMahan, *Executive Director, NC Board of Science and Technology*

Donald Martin, *Superintendent, Winston-Salem Forsyth Schools*

Rodessa Mitchell, *Director of Education and Business Alliances, Winston-Salem Chamber of Commerce*

Dr. Gary Green, *President of Forsyth Technical Community College*

Gayle Anderson, *President of the Winston Salem Chamber of Commerce*

Don Kirkman, *President of the Piedmont Triad Partnership*

Philip Price, *Assistant State Superintendent for Financial Services, NCDPI*

J. Donald deBethizy, *President, Targacept, Inc*

Bill Harrison, *Superintendent, Cumberland County Schools*

Terry Williams, *Executive Director for Technology, Cumberland County Schools*

Allan Jordan, *Director of On-line Learning, Cumberland County Schools Web Academy*

Jane Patterson, *Executive Director of e-NC*

Paul Lesieur, *Director, School Finance, NCDPI*

Bob Bellamy, *Assistant Superintendent for Technology and Accountability Services, NCDPI*

Tina Winter, *IBM Consultant for NCWISE*

Terry Bledsoe, *Catawba County Schools, Chief Technology Officer*

Angie Blalock, *Instructional Technology Coordinator/Systems, Engineer/Webmaster/NCWISE Project Manager*

Danny Hearn, *President, Catawba Chamber of Commerce*

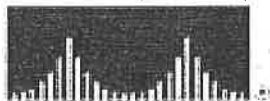Dr. Jane Everson, *Director, Hickory Metropolitan Higher Education Center*

BETA

Business & Education Technology Alliance

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Department of Public Instruction

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