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Governor's Commission on Education Reform in New York State
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Good afternoon, I am Donna DeSiato, Superintendent of the East Syracuse Minoa Central School District, a Member of the Technology Council of the University of the State of New York, an Alumna and trustee at Onondaga Community College and Co-leader of the Central New York STEM Hub of the Empire State STEM Learning Network, which is a partnership between the State University of New York and Battelle.

Thank you for the opportunity to speak to you today about the education of our children, and the future education of children throughout this great state. We are here to talk about finding the best use of technology in the classroom, but it is not about technology in isolation---it is how we use the tools that will make the real difference in student understanding in science, technology, engineering and math in critical fields for jobs in a global economy.

Thomas Friedman's *The World is Flat* awakened us to an evolving, interdependent, global community. The impact of Google, Facebook, You Tube, iPads, iPods andSmart illustrate that we are living in exponential times. We can also see the changes in traits and trends of learners over time from generation to generation. Baby-boomers (1946-64) are known to be task-oriented, career focused, competitive, idealistic, and in today's world, digital immigrants. Generation X (1965-1976) embraces the acceptance of diversity, multi-tasks, rejects rules and expects immediate, ongoing feedback. The Millenials or Echo-Boomers, also identified as Generation Y (1977-94) are predominantly children of baby-boomers who recognize the importance of work-life balance, are goal-oriented, have high expectations, seek creative challenges, and are digital natives. Generation Z (1995-2009), also known as the Net Generation, seek immediate results, are individualistic and take technology for granted as part of the world they navigate in daily. In 2010 and beyond, the Alpha Generation are entering the world as the first generation to be entirely born in the 21st century are projected to have five careers with 20 employers. What do all these changes mean for students, teachers, education leaders and policy decision-makers?

As we reflect on the impact of globalization and the differences in these five generations, can we provide evidence that our educational systems have evolved through the decades to adapt to the changes in our world? Are the educational systems of New York State designed to meet the needs of the 21st century learner? Heidi Hayes Jacobs, in her latest book *Curriculum 21: Essential Education for a Changing World* asks, "What year are you preparing your students for? 1973? 1995? Can you honestly say that your schools

curriculum and the program you use are preparing your students for 2015 or 2020? Are you even preparing them for today"(p. 1)? Have our schools changed or shifted in design or delivery from the baby-boomer generation to the needs of the alpha generation?

What does it mean for our students to be 21st century college and career ready? As leaders and policy-makers, what decisions will support the development of students prepared to think critically, communicate effectively, and collaborate productively, as well as create and innovate competitively in our global world?

According to Frank Kelly, Ted McCain and Ian Jukes (2009), authors of *Teaching the Digital Generation*, "Schools must shift gears to catch up to this new world" (p. 20). As we consider the changes in our world, let us also examine the changing skills and knowledge needed for success in today's workforce. Kelly, McCain and Jukes state that "Schools cannot continue the current traditional focus on low-level detail recall as the main thinking skill for students in a world that is crying out for workers with high-level thinking skills. Thinkers must use both sides of their brain to be truly effective at applying the full capacity of human reasoning to 21st century tasks," (p. 20).

The Governor's Commission on Education Reform provides an opportunity through a multi-lens perspective to examine the transformational work that is urgently needed in shifting our focus to authentic 21st century learning environments at every level of schooling in the pipeline from school to college and career. Transformation is the challenge and priority for all school districts to become exemplary 21st century learning environments whose graduates are prepared to excel in a complex, interconnected, changing world. What will this take? How do we make this shift? What will the transformation entail and how will we recognize genuine solutions?

<u>Understanding the Needs of Today's Learners; Teaching the Digital Natives:</u>

Whether we are embarking on or continuing the journey of transforming 21st century learning environments, we must first become learners of 21st century skills, themes and readiness. We must re-examine what we want all students to know and be able to do. In the words of the authors of *Teaching the Digital Generation*:

> **We want to cultivate in them a love for learning that will be so strong that it will sustain them for a lifetime. We want them to see the relevance of what we teach them in school is so compelling that they can't wait to get at it. To do this, we must make a significant shift in the kinds of skills we emphasize in our instruction. We must shift our focus to the higher level of thinking skills that are needed for success in 21st century life. (Kelly, McCain and Jukes, 2009, p. 21)**

Engaging Stakeholders in the Change Process with Effective Leadership Practices:

At ESM we began by examining leadership for learning and asking ourselves what do all leaders in our system need to do to enable our District to be successful in learning with all students? We realized that to accomplish this, all of our educators would need a deeper understanding of research and practice related to effective leadership, professional development and professional learning communities. We became learning leaders in areas such as distributed leadership and embraced the collaboration of educators, business leaders, high education representatives and community organizations in working together to achieve common goals. We began by inviting all stakeholders to become engaged and involved in our Strategic Plan, as a platform for shared decision-making.

Understanding the Relationship between Thinking and Learning:

Schools in this state and across the country continue to teach for the mastery of information and low level process learning; however this will not transform thinking for our students of the 21st century. Given a highly competitive global economy and the challenges of global interdependencies we must challenge ourselves and students in a new way. If we want students to be self directed learners, to work collaboratively, to explore areas through a creative lens, to explore innovative possibilities, we must give them dynamic, organizational, networking thinking tools that go beyond pure analytic reasoning and test-based, closed answer assessments. We must understand the relationship between the development of students' thinking and our teaching and learning paradigms. At ESM, we are on a path of discovering the interdependencies between the two. Cultivating thinking is the focus of our work for learners at all levels. The East Syracuse Minoa Strategic Plan guides our decisions and actions toward our vision of becoming *an exemplary learning community by preparing students for success in the 21st century*. A thinking curriculum must be at the center of the changes for the future.

Shifting from a Rote-Memory, Paper-Pencil Agenda to a Thinking Curriculum:

In summer 2005 as we grappled with these questions, we convened building and district level leaders to analyze our student achievement data. The analysis of the data, despite the hardworking efforts of many revealed, a significant gap existed between the abilities of our students and their performance. Dissatisfied with these results and determined to change this bleak pattern, we asked ourselves: what action needs to be taken to change the results of student learning in a positive direction?

As our District embarked on the development of a five-year strategic plan, we departed from the traditional paradigm of improving the current system. Most often the focus of strategic planning is to strengthen or modify what currently exists. Certainly, we believe in continuous improvement, however, in order to embrace the challenges, changes and opportunities of the 21st century, we discovered we needed to go beyond our existing system and our current paradigms which led us to the exploration of what many in the field are now calling *21st century skills* or a thinking curriculum, problem-based learning approach. No longer can we focus solely on the recall and memorization of content. Our

students need to know how to access information, ask questions, and apply their knowledge across content areas to make meaning, achieve deeper understanding and create new ideas or knowledge. Real-life experiences with the integration of 21st century skills of critical thinking, communication, collaboration, problem solving and innovation are essential for success in our global society. (DeSiato & Morgan, in press, p.1-2)

Integrating 21st Century Skills with Real-life Application for Learning:

Now, more than ever before the need to rethink how we are preparing our youth for the challenges and opportunities that lie ahead is critical. Facilitating meaningful, relevant experiences for our students is a powerful model for learning. All children in America need 21st century knowledge and skills to become effective citizens, workers and leaders in the 21st century. There is a profound gap between the knowledge and skills most students learn in school and the knowledge and skills they need in typical 21st century communities and workplaces. To successfully face rigorous higher education coursework, career challenges and a globally competitive workforce, U.S. schools must align classroom environments with real world environments by integrating 21st century thinking skills. (DeSiato & Morgan, in press, p. 9-10).

Facilitating meaningful, relevant experiences for our students is a powerful model for learning and for understanding the change process in a real world context. One example of this approach, at ESM, is our partnership with Bristol-Myers Squibb for the implementation of a course designed as a model for 21st century learning entitled " R_xeSEARCH: An Educational Journey." This course is aimed at helping the U.S. regain its status among world leaders in science. The curriculum, developed in collaboration with the National Science Resources Center and the Smithsonian Institute aims to teach students to practice skills of problem isolation, analysis, critical thinking and decision making – all in a team setting, by employing concepts of science, mathematics, social studies and language arts to an applied R&D scenario. This partnership demonstrates how schools today in comparison to 50 years ago are collaborating with area business and industry to "think outside the box" and embrace a 21st Century Learning model while promoting Science, Technology, Engineering and Math (STEM) careers. At ESM we are embracing a collaborative model of teaching and learning and applying these concepts and real-world experiences across all curricula areas.

Allowing Teachers and Leaders to Take the Necessary Risks and Building Capacity through Meaningful, Professional Development:

In supporting the shift in our focus for the integration of critical thinking, problem solving, collaboration, communication, creativity and innovation we have provided ongoing professional development to build capacity in the knowledge and understanding and of the Common Core Standards, effective teacher and leader practices and professional learning communities (Giselle Martin-Kniep, Rick and Becky DuFour et al). We have encouraged the development of curricula focused on interdisciplinary, problem-based, project-based

learning experiences. One example of this paradigm shift is the collaborative work is at our middle school where teachers have developed a transdisciplinary, professional learning community called the "STEAM Team" comprised of science, technology, language arts, fine arts, social studies and mathematics teachers working together in lesson design, delivery and assessment for learning. Two members of this integrated teaching team, Science Teacher Jason Fahy and Technology Teacher Tim Patterson recently participated with NASA scientists and engineers in the MARS Rover landing. Jason and Tim will bring their knowledge and understanding of the engineering design principles to ESM classrooms this spring with a MARS Rover project for our 8th grade students. This type of real-life application, relevant learning experience is essential in preparing our students with the knowledge, skills and understanding for today's world and tomorrow's challenges.

Forging Partnerships for Learning and Real-life Application with Business, Higher Education and Community Organizations at the Local, Regional, State and National Level:

At ESM we recognize partnerships for learning as essential in providing the knowledge, skills and experiences students need for success in the 21st century. We approach partnerships through the lens of creating learning opportunities for our students, not as a source of financial support for our District. Partnerships with the CORE Federal Union supporting financial literacy with a student-led Spartan Branch and with SUNY-ESF investigating environmental literacy with the Village of Minoa's Clean Water Educational Research Facility provide "real-life" 21st century college and career preparation experiences. The CNY STEM Hub stewarded by Partners for Business & Education with partners from ESM, the Syracuse City School District, Cincinnatus, Syracuse University, SUNY ESF, OCC, LeMoyne College, Siemens, MACNY, TACNY, the MOST, and others focuses our energies on common goals and shared resources. The significant involvement of our students, staff, parents, community members, business partners and higher education provides synergy for successful partnerships. Cultivating partnerships that create win-win situations for both the district and the organizations involved is a solution for connecting learning to real-life application.

Designing 21st Century Learning Environments with Technology as an Accelerator:

Technology tools are one part of this solution, not the sole solution. Technology in education is a process of developing solutions to address real-life problems. Digital and electronic tools and system capabilities such as access to the internet, document cameras, electronic portfolios, iPads, iPods, Promethean boards and Tandbergs are assets for learner success. The integration of technology is an accelerator in achieving success in this transformation, however, as Ellen Meier, Professor at Teachers' College at Columbia and Co-Chair of the USNY Technology Council states, "We can't afford to simply digitize the status quo!" The transformation of our educational systems must focus on the desired outcomes for success in the 21st century with the integration of critical thinking, problem-solving, communication, collaboration, creativity and innovation.

Assessments for Learning and Success in the 21st Century:

An in-depth knowledge and understanding of content is vital, however, no longer can we focus solely on the recall and memorization of content. Our students need to know how to access information, ask questions, and apply their knowledge across content areas to make meaning, achieve deeper understanding and create new ideas or knowledge. Real-life experiences with the integration of 21st century skills of critical thinking, communication, collaboration, problem solving and innovation are essential for success in our global society. Without these expectations and experiences there is a clear disconnect in what students are prepared for and what is needed for success in careers today.

Thinking is at the center of 21st century learning in the shift from mastery of content through memorization and recitation to internalization of content through application involving problem-solving, critical, creative and innovative thinking, communication and collaboration. Frank Kelly, Ted McCain and Ian Jukes (2009), in their book *Teaching the Digital Generation,* explicitly say, "Learning must focus on 21st-century thinking skills" (p. 38). These authors point out that, "Assessment must encompass both knowledge skills and higher order thinking skills" and they underscore that "assessment of higher order thinking skills must be an integral part of the teaching and learning process" (p.41).

Jim King, Architect at King & King Architects says, "teacher performance systems need to include the ability for teachers to take risks in the delivery of curriculum. Student performance needs to be based much less on standardized testing and more on developing and applying 21st century skills. When it (both student and staff evaluation) is based on testing, the tendency is to "teach" to the test. We are preparing great test takers and staff and students who are not risk takers with 21st century skills."

Measuring Success while Modeling Effective Practice:

Our ability to design our educational systems to be beacons of light in 21st century learning will be measured by our actions and outcomes. As we consider the priorities for the next decade, we need to examine the role that paper-pencil assessments play in the current system and to what degree they contribute to inhibiting needed shifts and change in teaching and learning. Measuring performance based on criteria can be accomplished in more effective and efficient ways. The mere cost in labor and resources of printing, storing, shipping, securing and scoring paper assessments for the more than two million students in New York State on an annual basis is staggering. These costs are multiplied when one considers the cost to students who are not given the opportunity to use the tools they will need for success in college and career.

As an educational leader and learner, this is an exhilarating time of inspiration, challenge and opportunity. With this in mind, I offer my service in seeking and implementing solutions to better meet the needs of all 21st century learners in the State of New York. Thank you for listening.

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