Massachusetts Commission to Develop an Index of Creative and Innovative Education in the Public Schools


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Executive Summary

Business, education, cultural, and political leaders in Massachusetts and across the nation recognize that our economic success depends on innovation. To support innovation, we need to develop young people’s creative and analytical skills so that they are prepared to succeed in college and careers, and are able to adapt to continuing change. We must educate our children for technologies that haven’t been invented to be used in jobs that don’t yet exist.

While improving education is a national concern, Massachusetts is the first state to establish a blueprint for developing creativity in its students, as detailed in this report from the Massachusetts Commission to Develop an Index of Creative and Innovative Education in the Public Schools (hereinafter, “the Commission”). This first-in-the-nation legislation puts Massachusetts in a position of national leadership in lifting critical workforce development outcomes such as creativity and innovation into the center of the state's school reform agenda.

The Commission's work comes at a time of great national urgency as forty-six states and the District of Columbia work to implement the Common Core State Standards and prepare all students for college and career readiness. Massachusetts has been a leader in both the creation and implementation of the Common Core State Standards. Through the Index, creativity and innovation will be named and exemplified as higher order skills central to Common Core implementation and the definition of college and career readiness. Massachusetts is a leader of the Partnership for the Assessment of College and Career Readiness (PARCC), the consortium of states formed to assess students’ mastery of the Common Core State Standards, and will also be among the first states in the United States to participate as an independent entity in the Program for International Student Assessment (PISA), an assessment that demands that students apply analytical, creative, and problem-solving skills in science, mathematics, reading, and writing. Encouraging opportunities for creativity and innovation in the curriculum, as exemplified by the Index, will be yet another way for Massachusetts to demonstrate its leadership in education.

By following the blueprint outlined in this report, Massachusetts will be the first to establish a pipeline of innovative talent to meet the needs of its business community.

Commission members understand that many Massachusetts teachers already support creativity and innovation in their classrooms. The Index will recognize the valuable work of these teachers and spread the word about effective teaching practices. Massachusetts will grow as a hub of innovation and creativity by capitalizing on the strength of its existing industries and the strength of its world-class higher education system, and by fostering creativity in the nearly 1,000,000 students attending its pre-K-12 public schools.

The Commission’s recommendations for implementation over five years are:

1. Create an advisory body, composed of representatives from the original Commission, along with representatives from education, business, and the community, to oversee the development and piloting of the Index for purposes of establishing a proof-of-concept.
2. Seek public and private funding to support research, development, and piloting of the Index, as well as dissemination of results and develop detailed timeline and scope of work.

3. Subject to annual appropriation, identify project management staff, a research/evaluation consultant with technical expertise to develop a set of school-level indicators of creative and innovative opportunities, and a panel of national/international researchers in creativity to review and refine indicators.

4. Identify school districts to participate in a pilot and to collaborate with the research/evaluation consultant to refine the Index and determine how results would be reported (e.g., as scores, as a scale, as performance levels).

5. Conduct additional qualitative research (e.g., student, parent, educator interviews, and collections of student work) on the schools that the Index rates highly as a means of validating the Index.

6. Document and publicize the work of schools that receive high ratings on the Index, show strong evidence of creative work by students, and demonstrate the capacity to narrow academic achievement gaps among student groups.

7. Consolidate information on creative opportunities in schools, colleges, and the workplace into a searchable database.
Introduction

The Department of Elementary and Secondary Education respectfully submits this Report to the Legislature [pursuant to Section 181 of Chapter 240 of the Acts of 2010, amended by Chapter 9 of the Acts of 2011]:

...The commission shall complete a written report detailing any factors to be considered in the index and any financial measures that would be necessary for implementation to the governor, the clerks of the senate and house of representatives, the joint committee on tourism, arts and cultural development and the joint committee on education not later than September 30, 2011.

Section 181 of Chapter 240 of the Acts of 2010, amended by Chapter 9 of the Acts of 2011, establishes a Commission to Develop an Index of Creative and Innovative Education in the Public Schools (hereinafter, “the Commission”). It describes the selection and appointment of members of the Commission and specifies that “each of the members shall be an expert or have experience in the fields of education, public policy, artistic development, workforce development, or cultural development.” In September 2011, the deadline for the Commission’s report was extended to June 30, 2012. (The text of the legislation, a list of Commission members, and meeting minutes are in Appendices A, B, and C.)

The legislation cites as examples of creative opportunities in and outside of school time “arts education, debate clubs, science fairs, theatre performances, concerts, filmmaking, and independent research.” The charge to the Commission was to develop a vision of the Index when fully implemented; recommendations on how to design and implement the Index and disseminate results; and recommendations on funding and cooperative agreements that would be needed. It also authorizes the Commission to “measure and encourage skill building in increasingly critical areas to employers, such as creativity, creative thinking skills, innovation and teamwork.”

Massachusetts is recognized across the nation and the world as a leader in education, not only for its students’ high academic achievement, but also for its focus on educational innovation. Massachusetts leaders in education, business and government recognize that public school systems must prepare students for the challenges they will face as citizens, participants in the global economy, and contributors to an innovative workforce. The future will demand creativity of the young people currently in our schools.

This report marks the beginning of a first-in-the-nation initiative to establish incentives and accountability for Massachusetts schools to provide students opportunities to engage in creative learning and work. The Commission was charged with making recommendations on how to enhance creativity and to rate schools based on their creative environment.

The Commission has developed a strategic 5-year plan that will accomplish several key goals:

- Develop, pilot, and refine a measurement of creative opportunities in schools and districts;
• Establish forums for public comment by educators, parents, students, researchers, and the business community on the development of the Index;
• Provide a phased-in implementation to allow schools to prepare for the Index.
• Become a national model for a broad communication strategy about effective teaching that builds creativity.

The global economy is shifting to an economy of ideas and innovation. Today, America faces what *Newsweek* has dubbed “the Creativity Crisis.”¹ According to a coalition of researchers,² 81 percent of American corporate leaders say that “creativity is an essential skill for the 21st century work force,” adding further that it is the skill most lacking in those entering the work force out of college. IBM conducted face-to-face interviews with 1500 CEOs across 60 nations and 33 industries, and 60 percent named creativity as the most important leadership skill.

In the 21st century, business will locate jobs in centers of creativity and innovation. By implementing the Commission’s recommendations, Massachusetts will continue to be a global leader in education and be the first to establish a pipeline of creative talent through our 400 public school districts and 29 public institutions of higher education. Massachusetts will be a hub of innovation and creativity by capitalizing on the strength of our existing industries and the strength of our world-class higher education system, and by fostering creativity in the nearly 1,000,000 students who attend our pre-K-12 public schools.

**The Commission’s vision of the Index when fully implemented**

The purpose of the Index will be to inform the public about the level of creative opportunities in Massachusetts’ 1,900 public schools, 400 operating school districts, and 72 charter public schools. The Commission envisions the Creativity Index as a key component of its implementation of more rigorous academic standards and as a complement to the information published annually by the Department of Elementary and Secondary Education on student academic achievement. In the Commission’s design, when the Index is fully implemented, it will provide the following information and services:

• Ratings of the creative opportunities available during school and out-of-school time in public elementary, middle, and high schools;
• Links to schools’ videos and student work that exemplify creative opportunities;
• A searchable database of information on preK-20 creative opportunities including partnerships with institutions and individuals in the arts, sciences, and humanities; public and private grants that support creative opportunities; and competitions and programs organized by educational organizations and business (e.g., science and history fairs, juried artistic performances and exhibitions, robotics programs, state public higher education programs, open-source courseware, scholarships, and career opportunities in the STEM and creative economy fields).

¹ *Newsweek*. July 10, 2010
The organization of the report
This report has three major sections:

- Section I describes the context for the Commission’s discussions around the development of a creativity index, including the educational landscape, examples of indices of the creative economy, and a description of data available.
- Section II provides recommendations for designing, piloting, and implementing an index and disseminating the results.
- Section III contains Appendices that provide details on the Commission and the resources it reviewed in developing its recommendations.

The report also includes examples, such as the one below, to illustrate the creative and innovative opportunities currently being offered to students in Massachusetts public schools. Other examples are on pages 7, 9, and 14. Members of the Commission contributed these examples drawn from their experiences and those of their organizations.

Creative and Innovative Opportunities for Massachusetts Students: An Internship with a Design Firm

Youth Design is a unique summer mentorship program that introduces inner-city high school students to careers in the design profession by providing high quality, paying design jobs in Boston area design firms, agencies, and in-house design departments.

Linda Deng, Class of 2010 at Boston Latin School, had an internship with Northeastern University’s marketing and communications department. Linda was given to opportunity to generate a concept and design for the school’s advertisement and her work earned a gold award from the Council for Advancement and Support of Education from The New York Times Magazine. “In a sense, it was beginner’s luck,” she says. “But it also helped me realize what I was potentially good at.”

Linda’s visits to design-related firms during her Youth Design summer exposed her to professionals working in the arts – and inspired her enrollment at Rochester Institute of Technology, where she studies industrial design. “Youth Design taught me that there is a future in what I want to do.”
Section I: The Context of the Commission’s Work

The Educational and Business Context, 2000-2012

The No Child Left Behind Act

The No Child Left Behind Act (NCLB), the most recent authorization of the Elementary and Secondary Education Act (ESEA), is the principal federal law affecting education from pre-K through high school. Designed to improve education and increase the nation’s global competitiveness, NCLB required annual reporting of schools’ and districts’ progress, measured by state assessments, toward having all students demonstrate proficiency in mathematics and reading by 2014.3 As NCLB was being implemented over 10 years, some critics pointed to the varying quality of state standards and state assessments, charging that there was no consistent standard of proficiency across states.

Business and the College and Career Readiness Agenda

Realizing the link between education and the economy, businesses nationwide were very active in the push for reforming education in order to better prepare students for college, careers, and citizenship. They called for not only higher academic standards, but also more partnerships between business and the schools, more internship opportunities, and more attention to closing achievement gaps between socioeconomic, racial, and ethnic groups.4 Massachusetts, with its strong healthcare, science, and technology industries, emphasized the need to improve STEM (science, technology, engineering, and math) education. The Commonwealth’s cluster of world-class universities, cultural organizations, and publishing and design firms also creates a demand for students prepared for work in the creative economy.

The Common Core State Standards, Race to the Top, and Common Assessments

A growing consensus on the need for higher academic standards that would prepare students for college and career readiness resulted in K-12 Common Core State Standards in English Language Arts/Literacy and Mathematics. Developed under the aegis of the National Governors Association and the Council of Chief State School Officers in 2009-2010, the Standards had been adopted by 46 states and territories by 2012. Massachusetts incorporated the Common Core Standards into its Curriculum Frameworks in 2011.

While developing and adopting the standards was a state-led process, the U.S. Department of Education funded two major initiatives related to the standards: Race to the Top state grants and the development of consortia of states to create common assessments based on the standards. Massachusetts and 11 additional states were granted large Race to the Top grants in part on their plans for implementing the new standards, assessments, and a statewide educator evaluation system. Massachusetts has also taken the lead in the Partnership for the Assessment of Readiness for College and Career (PARCC), which is developing grades 3-11 assessments in mathematics and English language arts/literacy, scheduled to begin in the 2014-2015 school year.5

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3 In 2011, the U.S. Department of Education invited states’ proposals for waivers from some of the provisions of NCLB. Massachusetts was granted a waiver in February 2012. See http://www.doe.mass.edu/nclb/waiver/overview.pdf.
Creativity and Innovation in Education
Other voices from business, education, and the cultural sectors, such as the Partnership for 21st Century Skills, argued that higher academic standards and more rigorous assessments were important but called for additional components such as creativity, critical thinking, collaboration, global awareness, financial literacy, aesthetic awareness, and problem-solving.6 (See Appendix D for a history of the field of creativity studies in higher education.)

Those who advocate for students to have more creative experiences in schools cite the value of engaging students in long-term projects in which they must be responsible for developing, researching, and refining ideas, looking critically at their work, and revising it in order to share it with others through civic action, publication, or performance. Opportunities for creativity and innovation exist in all subject areas, from mathematics and science to writing and the arts. They believe that students’ mastery of the Common Core State Standards in both mathematics and English language arts/literacy can be exemplified best in projects that call for creativity and innovation.

The Creativity Index Movement
Proponents of a creativity index want to hold schools accountable for the creative and innovative dimension of education. They want to recognize those schools that provide opportunities for creative work, that engage and motivate students, and that narrow academic achievement gaps among student groups. Annual public reporting of a school’s commitment to creativity and innovation, they said, was equally important to improved education as annual public reporting of students’ achievement on standardized assessments of math, science, reading, and writing.7 It is important to note that there are no existing models of measuring creativity in schools applied on a large scale. Massachusetts has an opportunity to show its imagination, technical expertise, and leadership in developing an index that is authentic, fair, and a stimulus for improving the quality of public education.

Creative and Innovative Opportunities for Massachusetts Students
Expeditionary Learning: Getting Smart to Do Good

In Expeditionary Learning schools, creativity and innovation are harnessed in service of real work that has a positive impact on the communities in which students live. At the Springfield Renaissance School in Springfield, Massachusetts, ninth-grade environmental students conducted professional-quality energy audits of four local school buildings and presented recommendations, supported by detailed cost-benefit analyses, to the mayor of Springfield. The students' strong scientific research and deep knowledge of energy conservation convinced the mayor to commit over $160,000 to implement the plan proposed in their Greenprint Report. Within one year, the city had recouped over half of its original investment and has since expanded the program to school buildings throughout the city. This type of deeply engaging teaching and learning maximizes the creativity and innovation of students while preparing them for the demands of college and career.

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Existing Indexes of Creativity and Economic Development
The early 21st century also saw the publication of a number of studies of creativity in the workplace that focused on the importance of innovative industries to urban and regional economic development. Urban studies professor Richard Florida and colleagues invented several versions of an index, based on indicators for “technology, talent, and tolerance” by which they measured and rated cities, states, and nations on their capacity to attract and retain creative workers and citizens.8

A Possible Starting Point for a Massachusetts Index
The Department of Elementary and Secondary Education (ESE) collects and publishes data on student demographics, course-taking, achievement, and educator assignments in all public schools. In addition, individual offices or programs conduct studies on a more limited basis. The existing data elements do not directly address creative opportunities during and beyond school time. (See Appendix E for a listing of the data available in 2011-2012 and Appendix F for a proposal by a subcommittee of how existing data might be used in an Index.)

Current ESE data sources could be used to answer questions such as:

- What courses are offered in a school?
- How many teachers are assigned to teach a particular course in a school?
- What is the ratio of students to teachers of a particular course?
- What are the school and district student scores at grades 3-8 and high school on statewide assessments in English language arts, mathematics, or science?
- What are the trends in these scores for all students at the state, district, and school level, and for special populations (e.g., low-income students, English language learners, students with disabilities) over time?
- What are the state trends in student performance in national and international assessments (e.g., National Assessment of Educational Progress (NAEP), PISA, or Trends in Mathematics and Science Study (TIMSS))?  
- What Advanced Placement courses are offered in high schools and what percentage of students achieve a passing score on AP exams?
- What are the graduation rates for high schools?
- What is the ratio of students to computers at the state, district, and school level?
- Which schools submit nominations for educator recognition awards?
- Which colleges educate future teachers in particular teaching areas?

ESE’s present data collection cannot presently answer such potentially relevant questions as:

- What are the creative opportunities in each course?
- What after-school activities are offered and what are rates of participation?
- How much time in the school day is allocated to a given subject?
- What professional development does a school provide to foster creative teaching?
- Does a school have dedicated sources of funding to support projects to stimulate creativity (e.g., line items in a school/district budget or external grants)?

• What are students’, parents’, or educators’ perceptions of the creative opportunities in their schools?

In the future, the state’s preK-12 and higher education data elements will be linked, thus allowing some examination of, for example, graduates of particular schools and their majors in public higher education in Massachusetts. Although the Commission’s legislation is silent on the role of higher education in developing a creative economy, this would seem to be an important link to make when longitudinal data becomes available.

The Commission recognized that it did not have the capacity to develop the definitive components that would be used to measure the presence of creative opportunities in schools, and has recommended that a research organization with expertise in evaluation and survey design undertake this task. Nonetheless, the Commission believes that a skilled researcher could mine the existing data to create an initial set of cost-effective indicators for the Index.

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Creative and Innovative Opportunities for Massachusetts Students: 
Real World Design Challenge

Imagine a learning environment where at one side of the room, two students are observing computer simulations. In the front, several students are brainstorming ideas on a marker board. And at a table are a group of students and a local engineer discussing the aerodynamics of an airfoil. This team’s goal is to design a solution that produces a fuel-efficient, light sport airplane. Time is tight. The problem is challenging. But they are driven. And just like in industry, they are solving problems, managing time constraints, and coming up with creative solutions to deliver a product.

Experiences like this happen every year when students enter the Real World Design Competition (RWDC). It is a program for high school students given the task of solving a current problem in aerospace. The program is managed by PTC, a Massachusetts-based technology company, and involves dozens of partners from industry, education, and government. Through partner contributions each RWDC team gets free engineering tools, training, and connections to local industry experts. This year 702 teams participated from 39 states.

Marlborough High School’s team won the state round in Massachusetts. They joined the other state winners for an all-expense paid trip to Washington, D.C., where they presented their solution to aerospace experts from companies like Northrop Grumman and NASA. Programs like RWDC are great opportunities to inspire and prepare students for creative and innovative careers. It is also a great way to spark innovation in classrooms. Among the participating schools, 45 percent integrated the design philosophy and practice of the Real World Design Challenge.
Section II: Recommendations

1. **Create an advisory body, composed of representatives from the original Commission, and additional representatives from business, education, and the cultural sectors, to oversee the development and piloting of the Index for purposes of establishing a proof-of-concept.**

   A governance structure is needed for an advisory body to provide direction as the Index evolves and is piloted and refined. The Commission recommends that this body be led by a three-person Executive Committee, representing business, education, and the cultural community, who are appointed by the Governor, Senate President, and Speaker of the House. The Executive Committee, in turn, would appoint up to 18 people with expertise or experience in business, education, public policy, or workforce and cultural development. The Executive Committee would report to the Board of Elementary and Secondary Education and would support annual reports to that Board, the Secretary of Education, Governor, Joint Committee on Education, and Joint Committee on Economic Development.

   The Commission recommends that management of Index development and piloting reside at the ESE, subject to appropriation for staffing. It is anticipated that 1 FTE project management staff would be needed to work with consultant researchers/evaluators, school districts, expert review panels, and data collection staff at ESE.

2. **Seek funding to support research, development, and piloting of the Index, as well as dissemination of results and develop detailed timeline and scope of work.**

   The legislation that created the Commission to Develop an Index of Creative and Innovative Education in Public Schools included no funding to support the work of the Commission. To design and implement an Index, funding will be needed; minimum annual cost estimates are listed below. Costs are higher in the initial years because of development, piloting, and consulting costs; once the Index and procedures are fully designed, costs are projected to decrease. The figures below represent a one-to-one match of public funds and private funds from foundations. Total public expenditures over the five-year period would be $417,500.

<table>
<thead>
<tr>
<th>Year</th>
<th>Cost</th>
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<tbody>
<tr>
<td>Year 1: Planning and Design</td>
<td>$200,000</td>
</tr>
<tr>
<td>Year 2: Limited Pilot and Refinement of Index</td>
<td>$200,000</td>
</tr>
<tr>
<td>Year 3: Expanded Pilot and Initial Documentation</td>
<td>$185,000</td>
</tr>
<tr>
<td>Year 4: Large-scale Pilot and Documentation</td>
<td>$125,000</td>
</tr>
<tr>
<td>Year 5 (and beyond): Full Implementation</td>
<td>$125,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$835,000</strong></td>
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   **Overview Timeline for the Piloting and Implementation of the Creative Index**

   The Commission recommends that the Index be phased in over five years, with ample time for working with districts in its development, refinement, and piloting, and time for outreach and professional development to help the schools and the public understand the purpose and benefits of having such an Index as a resource.
Year 1: Planning and Design
Identify funding sources and, subject to appropriation, hire ESE project manager and consultant
Identify relevant ESE data elements and additional data needed; design survey questions if needed
Recruit 50 schools in 18 districts (Cohort I) to advise on the Index
Develop the components of the Index and its reporting mechanisms with the help of districts
Convene a panel of experts and scholars for a peer review of the proposed Index design

Year 2: Limited Pilot and Refinement of the Index
Pilot the Index in 50 schools (1-3 in each of 18 Cohort I districts), with discussion of the results and how they should be reported with piloting districts
Refine the components of the Index based on the pilot
Develop a procedure for selecting schools for further documentation
Develop a procedure for reviewing and assessing documentation submitted
Convene panel of experts to review results of pilot
Recruit 50 additional schools from Cohort I (100 total) and 50 from Cohort II districts

Year 3: Expanded Pilot and Initial Documentation
Pilot the Index in 150 schools, including some full districts (Cohorts I and II)
Select 20-30 schools for further documentation
Rate the documentation submitted to identify schools with strong creative opportunities
Get feedback from Cohorts I and II to improve process

Year 4: Large-scale Pilot and Documentation
Implement the Index in all 1,829 schools in a full-scale pilot with results reported to schools and districts but not made public
Select up to 60 schools for further documentation
Rate the documentation to identify schools with strong creative opportunities
Publicize schools that meet criteria for strong creative opportunities and narrowed achievement gaps; provide technical assistance for Year 5
Get feedback from participating schools to improve process

Year 5 (and beyond): Full Implementation
Implement the operational Index in all 1,829 schools, with public reporting
Select up to 100 schools for further documentation
Identify schools that have strong creative opportunities and that narrow academic achievement gaps
Publicize schools that meet criteria for strong creative opportunities and narrowed achievement gaps

The Commission recommends that this initiative should be a partnership of government, business, and foundations, with a private/public funding match to support development and implementation and to sustain use of the Index. (A more detailed breakdown of anticipated costs and a list of foundations that might be considered for funding are in Appendices G and H.)
3. Subject to annual appropriation, identify project management staff, a research/evaluation consultant with technical expertise to develop a set of school-level indicators of creative and innovative opportunities, and a panel of national/international researchers in creativity to review and refine indicators.

The Commission recognizes the need for technical expertise to design the components of the Index. Preliminary talks with evaluators suggested several approaches:

- mining existing data available from ESE and other sources such as the National Center for Education Statistics (NCES) for proxy indicators;
- identifying additional data points specifically related to the Index (e.g., after-school activities) for new data collection by ESE; and
- identifying additional data points for new data collection through an independent survey.

Because this project ventures into an area that is entirely new and a fertile area for research, the Commission recommends that a panel of national and international experts and scholars in the field of creativity in education serve as external reviewers of the Index design, and advisors to the project in the initial years of the work to guide the development of the Index and associated research.

4. Identify school districts to participate in a pilot and to collaborate with the research/evaluation consultant to refine the Index and determine how results would be reported (e.g., as scores, as a scale, as performance levels).

Commission members believe that it will be crucial to have a group of volunteer districts to inform the design decisions and pilot early versions of the Index. School and district leaders could be profoundly affected by public reporting of Index results, and thus should have the ability to contribute to the design of the Index and to advise on how its results will be reported. Should the Index design involve new data collection, pilot districts’ early experiences will provide practical feedback on how easy or difficult it will be to assemble reliable information about new areas (e.g., after-school activities).

The process of recruitment of pilot districts to become “early adopters” of the Index will involve outreach by ESE and members of the advisory body, who will develop a communications strategy about the development and importance of the index for various audiences. (See Appendix I for an overview of the kinds of communication that might be used.)

5. Conduct additional qualitative research (e.g., student, parent, educator interviews, and collections of student work) on the schools that the Index rates highly as a means of validating the Index.

A consistent theme of Commission discussions was the inadequacy of a solely quantitative approach. A quantitative analysis of selected data elements identified by the researcher would be a necessary first stage in indentifying schools that appear to be rich in creative offerings. The second stage in the process would be to validate the ratings of the Index using a qualitative approach, such as reviewing school portfolios of student work, conducting school observations.
(similar to accreditation reviews of bodies such as the New England Association of Schools and Colleges (NEASC)), and conducting surveys of students’ parents’ and educators’ perceptions about the level of creativity in their schools. (See Appendix J for questions that might be asked to gather information about perceptions of creativity.) A qualitative approach would also provide information on the degree to which district or school leaders take a systemic approach to ensuring that opportunities for creativity are equitably available to all students and well-integrated with other initiatives such as the implementation of the Common Core State Standards and educator evaluation.

While adding a qualitative component to the Index will add to implementation costs, Commission members believe that the benefits of including a qualitative component are considerable. First, collecting examples of creative opportunities and the student work that results from them will be a positive way for districts to demonstrate how their curriculum can offer creative opportunities and be aligned with standards. Second, such activities become a part of professional development as districts share their work with peers.

6. **Document and publicize the work of schools that receive high ratings on the Index, show strong evidence of creative work by students, and demonstrate high academic achievement and growth by all students.**

   Once a qualitative component is established, a powerful element in the implementation of the Index will be the dissemination of strong models of education that combine a high level of creative opportunities with evidence of exemplary student work and high academic achievement. Dissemination should include innovative strategies that celebrate model schools and inspire others to emulate them.

   Dissemination can begin in year 2 by public recognition, in partnership with local communities and the business sector, of exemplary schools within the pilot cohort. By years 4 and 5, a number of schools will have been identified that meet the criteria. At this point, the staff role supporting the Index will focus more on communications and outreach, such as: incorporating Index ratings into ESE’s School and District Profiles; recognizing and celebrating the work of exemplary schools through statewide and local venues; publicizing the models through ESE’s teaching and learning system and conferences; and creating a dedicated website to feature model teachers and schools and promote creative teaching and learning.

7. **Consolidate information on creative opportunities in schools, colleges, and the workplace into a searchable database.**

   The Commission’s discussions have brought home the point that there is presently no single place on the Internet where a person might find information about creative opportunities in public schools and colleges, the community, and the workplace in Massachusetts. A long-range goal of the Index would be to provide a searchable database so that students, parents, and educators would have access to information, for example, about which businesses sponsor robotics competitions or work/study programs, which cultural institutions offer internships, which schools offer strong dance programs, or which universities offer open-source coursework in video production or engineering.
Conclusion
Massachusetts, already a leader in improving academic achievement, has the chance to show leadership again in making a commitment to inventiveness as part of excellence in education and college and career readiness. The members of the Commission to Develop an Index of Creative and Innovative Education in Public Schools are grateful to the Legislature for giving them the opportunity to shape and present their conception on a Creativity Index. They look forward to working with school districts, business, and researchers in its design and implementation in the coming years.

Creative and Innovative Opportunities for Massachusetts Students: Interpretations of Literature

Brockton High School tenth graders in Joanne Nelson’s English language arts class practice close reading of classics of American literature such as Nathaniel Hawthorne’s *The Scarlet Letter*. They need to have an extraordinarily deep understanding of how the author builds his tale through characterization, use of mood and tone, and symbolism because their final project will call upon them to interpret the text in another medium, such as visual art, dance, or music.

These projects require several drafts, revisions, and a lot of personal investment. Students’ book cover designs, illustrations, sculptures, compositions, and dances inspire detailed discussions about the book’s themes.

The students immerse themselves deeply in an extended complex text that has multiple levels of meaning. Close reading and interpretation take time, but Nelson has proof that her approach works: 100% of her urban students pass the 10th-grade English assessment of the Massachusetts Comprehensive Assessment System, in which they must write a long composition about a work of literature. Ninety percent of them score at the Proficient or Advanced levels. But their understanding of the power of literature goes beyond their writing on a statewide assessment. As one student stated, "...after (I completed) the theme-quilt project, I saw learning in a new way. It changed my school career."

Nelson bases her approach to teaching literature on the work of Harvard University psychologist Howard Gardner, whose theory of multiple intelligences proposes that there are several kinds of intelligences: verbal, musical, spatial, mathematical, kinesthetic, interpersonal, intrapersonal, and scientific. Her students’ perceptions of their own strongest forms of intelligence inform their choice of form for their extended project.
Section III: Appendices

A. Legislative authority

B. List of Commission members

C. Minutes of the meetings

D. History of academic study of creativity

E. Types of data available from the Department of Elementary and Secondary Education

F. Subgroup reports

G. Cost breakdown by year

H. Communications materials

I. Sample survey questions on perceptions of creativity

J. Bibliography and resources considered by the Commission
Appendix A: Legislative Authority

Commission To Develop An Index Of Creative And Innovative Education In The Public Schools

Chapter 240 of the Acts of 2010

SECTION 181. There shall be a commission to develop an index of creative and innovative education in the public schools. The commission shall consist of the commissioner of elementary and secondary education, the secretary of housing and economic development, the secretary of labor and workforce development, or their designees, the executive director of the Massachusetts cultural council, 3 members to be appointed by the senate who shall reside in different geographic regions, 3 members to be appointed by the house who shall reside in different geographic regions and 5 persons to be appointed by the governor who shall reside in different geographic regions, 1 of whom shall be a representative of the Massachusetts Advocates for the Arts, Sciences and Humanities, 1 of whom shall be a representative of the Associated Industries of Massachusetts and 1 of whom shall be a representative of the Massachusetts Business Roundtable. Each of the members shall be an expert or have experience in the fields of education, public policy, artistic development, workforce development or cultural development. The members of the commission shall be appointed no later than 30 days after the effective date of this act.

In the course of its deliberations, the commission shall develop recommendations on how to produce and implement an index of creative and innovative education in the public schools, what funding or finance measures the commonwealth would need to implement that index and any recommendations for interagency agreements, intermunicipal agreements or other cooperative agreements that would be required to foster creative and innovative education programs in the public schools. The index shall rate every public school on teaching, encouraging and fostering creativity in students. The index shall be based in part on the creative opportunities in each school as measured by the availability of classes and before-school and after-school programs offered by and through school districts that provide creative opportunities for students including, but not limited to, arts education, debate clubs, science fairs, theatre performances, concerts, filmmaking and independent research.

The commission shall measure and encourage skill building in increasingly critical areas to employers such as creativity, creative thinking skills, innovation and teamwork. The commission may hold public hearings to assist in the collection and evaluation of data and testimony. The commission shall complete a written report detailing any factors to be considered in the index and any financial measures that would be necessary for implementation. The commission shall submit a report to the governor, the clerks of the senate and house of representatives, the joint committee on tourism, arts and cultural development and the joint committee on education not later than December 31, 2010.

Any research, analysis or other staff support that the commission reasonably requires shall be provided by the department of elementary and secondary education, the executive office of housing and economic development and the executive office of labor and workforce development, in cooperation with the Massachusetts cultural council.
Chapter 9 of the Acts of 2011

SECTION 43. The first paragraph of section 181 of said chapter 240 is hereby amended by inserting after the words “secondary education” the following words: , who shall serve as chair of the commission.

SECTION 54A. The special commission established in section 181 of chapter 240 of the acts of 2010 is hereby revived and continued. The commission shall complete a written report detailing any factors to be considered in the index and any financial measures that would be necessary for implementation to the governor, the clerks of the senate and house of representatives, the joint committee on tourism, arts and cultural development and the joint committee on education not later than September 30, 2011.
Appendix B: List of Commission Members

Chair:
Mitchell D. Chester  Department of Elementary and Secondary Education

Ayora Berry  Associated Industries of Massachusetts
Maydad Cohen  Executive Office of Labor and Workforce Development
*Diane Daily  Massachusetts Cultural Council
Charles Fadel  Harvard Graduate School of Education
*Helena Fruscio  Executive Office of Housing and Economic Development
D. Scott Hartl  Expeditionary Learning
*Hathalee Higgs  Hunter Higgs, LLC
Dan Hunter  Hunter Higgs, LLC
Donald Landing  MITRE Corporation, representing the Massachusetts Business Roundtable
*Greg Liakos  Massachusetts Cultural Council
Trudy Macero  Winthrop School of Performing Arts
Gary Maestas  Plymouth Public Schools
Eric Nakajima  Executive Office of Housing and Economic Development
*Jennifer James Price  Executive Office of Labor and Workforce Development
Jonathan Rappaport  Arts/Learning
Doris Shallcross  University of Massachusetts Amherst
Anita Walker  Massachusetts Cultural Council
*Susan Wheltle  Massachusetts Department of Elementary and Secondary Education
Mary Kay Wydra  Greater Springfield Convention and Visitors Bureau

ESE Staff:
Teri Valentine  Department of Elementary and Secondary Education
Alice Barton  Department of Elementary and Secondary Education

*Designees for appointed Commission members
Appendix C: Meeting Minutes

Massachusetts Commission to Develop an Index of Creative and Innovative Education in the Public Schools
Chapter 240 of the Acts of 2010
Meeting: September 21, 2011, 10:00 a.m. -12:00 p.m.
Massachusetts Department of Elementary and Secondary Education, Malden

Attendance: Ayora Barry, Maydad Cohen, Diane Daily, Charles Fadel, Scott Hartl, Dan Hunter, Donald Landing, Trudy Macero, Gary Maestas, Jonathan Rappaport, Doris Shallcross, Mary Kay Wydra
Department of Elementary and Secondary Education Staff: Commissioner Mitchell Chester, Susan Wheltle, Director of Literacy and Humanities; Robert Curtin, Director of Education Data Services; Anne Goodfellow and Terri Valentine, Commissioner’s Office; Alice Barton, Office of Literacy and Humanities

Mitchell Chester is the Chair of the Commission. He and Susan Wheltle chaired the meeting. Mitchell Chester reviewed and summarized the statute and said the charge to the Commission was to develop recommendations for the components of an index, how it might be implemented, and what funding or interagency agreements might be necessary for implementation. The due date for recommendations is currently September 30, 2011. The Department of Elementary and Secondary Education (ESE) has requested an extension until June 30, 2012 for the report to the Legislature. There is no dedicated funding for the project, so any research would have to be done by Commission members and ESE staff.

Members of the Commission introduced themselves and described their questions and ideas for recommendations.

- How are creative and innovative approaches to problem-solving handled in the classroom and how can the Commission increase the level of creative teaching within and beyond the regular school day?
- What mechanisms are there for recognizing teachers doing innovative, creative work? Should the Commission develop a public component that brings attention to creative practices comparable to the way MCAS brings attention to academic achievement?
- Creative teaching can have positive results on student achievement and professional development (e.g., a class studies poetry, the school purchases more poetry books, MCAS ELA scores increase, and there is more professional development in reading/writing poetry).
- There is a need to differentiate between teaching creatively and teaching creative thinking; between opportunities related to creativity and creative outcomes.
- The Commission needs to consider the kinds of creative thinking that employers are looking for and how workforce needs fit into the Commission’s work.
- The Commission lacks resources to pursue a definitive research study but can begin to define important elements and communicate a message that creativity is a priority in Massachusetts public schools and in the workplace.
- The Commission needs to consider how it can use existing resources to create an index.

To acquaint the Commission members with the data available at ESE that might be pertinent to the task, Robert Curtin of ESE handed out information on data elements of three major data collections conducted by ESE:
• SIMS (Student Identifier Management System), which provides information on all students in public schools;
• SCS (Student Course Schedule), which lists courses taken in every school and links with a national course listing, but does not include extra-curricular activities; and
• EPIMS (Educator Personal Information Management System), which includes all educators, with the exception of coaches and maintenance workers. This database can link with the SCS.

He also mentioned the Growth Model in use since 2008. In the past, the agency was using data primarily for compliance with federal laws and regulations; there has been a transition to use of data to improve teaching and learning.

He discussed work on a P-20 data system that would link data from the Department of Elementary and Secondary Education (ESE), The Department of Early Education and Care (EEC), and the Department of Higher Education (DHE) as well as some other agencies. Children would start with a unique identifier that they would keep as they move through the public educational system. There is also an agreement with a national clearinghouse to get information from higher education, so that students who leave the state for higher education could be linked to MA data. He is talking with the Executive Office of Workforce and Labor Development to consider ways of including workforce data.

A member recommended looking at data systems in other countries that have been collecting such data. Maydad Cohen said that his organization has looked at this in some other countries.

Rob then talked about ESE’s prior experience with developing indices:
• The CPI (Composite Performance Index), which has been in operation for 7-8 years, indexes individual school and district performance based on MCAS scores.
• The Early Warning system puts 9th grade students on a scale illustrating the likelihood that they will drop out of high school. This is sent to districts. It is now being revamped, since it has been found that starting in 9th grade is too late to prevent dropouts. It will now be a K-12 index.

ESE has not collected data on extra- or co-curricular activities, but Rob said that might be possible. He also pointed out that each piece of data collected represents costs for school, districts, and ESE; and that every data change also costs money for districts through, usually, the 3rd party vendor they use to work with their data. ESE has achieved a certain level of data quality, but has now hired an auditor of data quality to verify some information.

There are existing frameworks for examining career readiness. Dan Hunter mentioned that California has adopted an index (or indices) of career readiness and college readiness.

A member cautioned that any index has to be introduced carefully. There was a concern expressed about the potential negative impact on schools and districts of public ratings. Members did not want a creative and innovative education index to be seen as a punitive measure.

More information is needed on:
• Career and college ready indices;
• Creativity indices from the US and other countries;
• Information on data collected from other agencies that might be relevant to the Commission’s task.
Susan Wheltle mentioned that the Organization for Economic Cooperation and Development (OECD) has several indices, including one on the quality of life in member countries. Charles Fadel said that other countries are quickly moving into this area and that there is a correlation between a democracy index and creative activities that go on in countries. Susan suggested doing a quick literature review on elements such a creativity index might contain.

A member asked whether the group needed to separate the idea of data collection from the idea of messaging. Several members said that the two were intertwined, and that the Commission work should be used to educate business, educators, politicians, and the public that creativity is important to schools and the economy.

Two approaches were discussed for the Commission. The first was for the Commission to draft a prototype of possible components of an index to present at public hearings, press conferences, and discussions with students. The second approach would be to hold open-ended public hearings without a prototype to solicit ideas. Members discussed the need to include recommendations for phasing in implementation and for creating awareness of how creativity and innovation can benefit students, teachers, schools, districts, and the workforce.

It was agreed that ESE staff would conduct some preliminary research on other existing data sources that might be useful and existing indices of creativity and quality of life. ESE will send out a contact list of Commission members, minutes of the meeting, and a date/place for the next meeting.
MA Commission to Develop an Index of Creative and Innovative Education in the Public Schools
Chapter 240 of the Acts of 2010
Meeting: December 1, 2011, 10:00 a.m. to 2:00 p.m.
Walnut Hill School, Natick

Attendance: Diane Daily, Hathalee Higgs, Jennifer James, Jonathan Rappaport, Doris Shallcross, Mary Kay Wydra, ESE staff: Alice Barton, Susan Wheltle, and Teri Valentine; Commissioner Mitchell Chester in the afternoon

Approval of Minutes: Mary Kay made a motion to accept the minutes of the last meeting. The motion was seconded. There was one correction. Teri Valentine works in the Commissioner’s Office, rather than the Legal Office at the Department of Elementary and Secondary Education. The minutes were accepted with this change.

Susan Wheltle reminded the group that the goal set forth in the legislation was to make recommendations for creating and implementing an index of creative opportunities available to students in public schools. The deadline for the report has been extended to June 30, 2012, and will have to be completed by May 30 to be ready for the June 30 delivery to the Legislature. She introduced the ESE Planning and Implementation Framework to help focus the discussion of how the group might proceed. The group broke into three groups to discuss the various aspects of planning. The summary of this discussion follows:

Vision: Effective work by the Commission will...
- Evoke creative behavior in students and teachers
- Elevate the role of arts education
- Stimulate more resources for arts/creative work
- Establish Massachusetts as a leader in this area
- Create an index to increase investments in programs
- Improve support for creative teaching and learning
- Develop a creative workforce

Theory of action
- If Massachusetts pre-k to 12 public schools provide opportunities for students to develop their creative capacities, students will come to see themselves as creators and innovators.
- If students carry creative and innovative attitudes with them into further study and work, they will be better equipped to meet the 21st century challenges.
- If Massachusetts wants a creative workforce, it must invest in changes to expand creative opportunities in schools.

Strategies
- Research what is in schools now and what data are currently available from ESE and other sources; consider if additional data are needed.
  - What does the current research/data look like? What does it measure?
  - What is going well in schools and how can it promote growth?
  - Are there other sources of data besides what we have considered so far?
• Phase in an index over a number of years; start with a pilot in volunteer schools/districts to assess the usefulness of the categories in the index and the feasibility of implementation
  - Decide on the categories of the index and make recommendations to the Legislature
  - Begin with currently available data for 3 years; add additional data over time;
  - Draft reward/incentive system for volunteer schools/districts to participate in index
  - Promote the index to schools, parents, employers
  - Evaluate efforts – is there an increase in creative/innovative opportunities in the schools/districts that piloted the index?
• Learn from strengths and weaknesses of the accountability system of the No Child Left Behind Act
• Figure out incentives for schools to increase creativity and innovation. Start with state-level data or regional-level data, not school-by-school
• Keep conversation and vision positive: the index should not be punitive
• Recognize the challenge that MA is already doing well on a number of school and workforce measurements. It will take effort to motivate more resources in this situation.
• Make creativity/innovation a “foundational skill”
• Research the number and percentage of people who are in creative jobs, including entrepreneurship and scientific innovation, not just the arts
• Create profiles of schools and the state, rather than using ranking
• Measure input rather than output
• Look at the amount of professional development and courses that support creativity and positive school/classroom climate

Outcomes
• The index is implemented in four years
• There is fiscal support for creativity and innovation in schools
• There are significant indicators of desired activities and environment in schools
• There is infusion of arts education in the curriculum
• There are four years of consistent improvement
• There is professional development for teachers, administrators, school committee members, parents
• There is creative learning across the curriculum
• There is more tolerance/celebration of alternate ways of thinking
• There are related changes to teacher preparation

Sample ESE data and format: The group then reviewed samples of ESE data Susan had compiled (e.g., state and district profiles components; information from the EPIMs Educator database; information on district submissions to educator recognition programs, technology data; commendations for narrowing proficiency gaps).
Afternoon
Commissioner Mitchell Chester arrived at lunch and then sat in on the meeting to answer questions. Diane asked what “success” in this endeavor would look like to him. He brought up the question of what “creativity” means, and what data might we already have that might be useful versus what would require additional data collection.

Categories for sorting data: The group reviewed the materials Susan had compiled on various indices of creativity (State Creativity Index [Florida, Adiarte, Stolarick, 2003]; the European Creativity Index created for the European Union [KEA, Brussels, 2008], the Global Creativity Index [Martin Prosperity Institute; Florida, Mellander, Stolarick, 2011]) and one on College and Career Readiness (ESE’s proposed College and Career Readiness Index, 2011). They also examined a possible set of categories Susan had derived from looking at these indices: School Culture: Tolerance of Diversity, Staffing and Programming, Technology, Community and Institutional Supports.

It was suggested that the group could do something structured similarly to the College and Career Ready measure drafted at ESE (which uses existing data), adding some of the categories that Susan developed. In regard to the category of School Culture: Tolerance of Diversity, members wondered what diversity actually illustrates. Diversity may be there, but that does not necessarily mean there is tolerance or celebration of that diversity. Does it imply anything about school climate?

The group brainstormed what the “big buckets” or categories of data would be:

1. School climate
   Leadership development (administrators, teachers/faculty, parents, students); diversity of students and educators; evidence of narrowing achievement gaps; student perceptions of openness
2. Flexible curriculum and programs
   Curriculum – flexibility by design; programs – staff and student participation in voluntary curricular and extracurricular activities; use of project-based learning (e.g., senior projects, internships); taking initiative to expand creative opportunities (e.g., applications to MA Cultural Council education programs)
3. Staffing
   Ratio of arts, science, social studies, language teachers, librarians per 100 students; applicants to teacher recognition programs; professional development; resources available to teachers; flexibility; expertise – diversity of expertise available and individual expertise; adequate supply of trained educators (arts, sciences)
4. Partnerships – institutional and community support
   Internships; business, community/cultural institution/higher education partnerships; partnerships with cultural institutions, state/municipal agencies; grant programs; PTO/PTA support for projects; scholarships for student fees for voluntary activities; community education fund to support innovations; school facilities for research, science, and arts activities; out-of-school time programs (after-school, summer); incentives for initiating new creative/innovative activities
5. Technology
   Ratio of students to technology; internet accessibility
**Next steps and next meetings**

One next step would be to do a literature search, starting with resources available within the group. Doris Shallcross offered to write an introduction of the history of creativity studies.

Susan said she would schedule additional meetings for 2012. Conference calls were discussed, but the group said members would prefer face to face meetings.

**Appendices:**

Files of materials distributed at the meeting:
- ESE’s Planning and Implementation Framework
- Samples of ESE data
- Samples of Indices
- Data Categories Creative and Innovative Schools Index - Draft
- Initial Bibliography
Massachusetts Commission to Develop an Index of Creative and Innovative Education in the Public Schools  
Chapter 240 of the Acts of 2010  
Meeting: March 12, 2011, 10:00 a.m. - 2:00 p.m.  
Greater Springfield Convention and Visitors Bureau, TD Bank Building, Springfield

Attendance: Dorie Shallcross, Hathalee Higgs, Ayora Berry, Diane Daily, Scott Hartl, Mary Kay Wydra, Teri Valentine, Alice Barton, Susan Wheltle

Approval of minutes
Dorie made a motion to accept the minutes of the Commission’s December 1, 2011 meeting. There were no corrections. Scott had one question, about whether the Commissioner had defined creativity; Diane replied that he had not. Dorie said that she had drafted her report introduction in part to answer the question. The minutes were accepted.

Communications
Susan and Teri reported on a phone conversation they had with Stan Rosenberg in February. He spoke of the importance of the work of the Commission’s work in leading states’ efforts to measure creativity in education. Senator Rosenberg is looking for the Commission’s report by the June 30, 2012 deadline to lay out the broad concepts underscoring the development of an index, and recommended policies and procedures for next steps in creating and implementing an index, as well as recommendations for funding sources. He said that having such a “blueprint” will set the stage for approaching foundations or other sources of both financial and non-financial support.

Dorie reported that she had been contacted by a doctoral student from Connecticut who is researching the work of the Commission for his dissertation and who wants to interview her and others periodically. The student has been in contact with Charles Fadel, also. Dorie asked whether Commission meetings were public, and whether she should grant interviews. Teri has sought advice on the application to the state’s open meetings law to the Commission’s proceedings. Susan reported that she has been contacted by Patti Shade, an author from Colorado who has written a book on creative activities for schools; Shade met Senator Rosenberg at an event in Denver. Susan has also been contacted by a Massachusetts arts educator, Ralph Caouette, who expressed interest and willingness to help whenever needed.

Scheduling of meetings for April and May
Teri reported that she had received responses from some members to the poll she had sent out for meetings in April. Of those who responded, April 24 and 30 were the dates when most people were available. The Commission agreed to hold meetings from 10 a.m. to 2 p.m. on those days in the Boston area. Teri will send locations as well as a new poll for possible meeting dates in May and June for completing the report to the legislature.

Discussion of the draft outline of the report to the Legislature
Susan led a discussion of a draft she had prepared, based on the members’ discussions at the December meeting, of an outline of a report to the legislature. Several members made suggestions of additions. The outline, as amended by the group, is as follows.
I. Executive Summary
II. Introduction
   A. Requirements of the legislation
   B. Workforce skills needed in 21st century Massachusetts
   C. Creativity as a field of academic study
   D. The Commission’s meetings and resources considered
   E. Currently available relevant data collected by ESE and other agencies
III. Recommendations
   A. Vision of the index when fully implemented
   B. A structure for leadership and governance for implementing an index
   C. Potential for collaborating with other interested states on a common index
   D. Five Year Implementation Plan, 2012-2017
      i. Communications strategy
      ii. Outreach to students, educators, business community, public
      iii. Components of an index
      iv. Additional data collection or research needed
      v. Conducting a pilot with districts and refining the index
      vi. Reporting the results of an index
      vii. Scaling up beyond a pilot
      viii. Partnerships with higher education and organizations
      ix. Cost estimate for pilot and implementation
      x. Funding strategies
IV. Appendices
   A. Legislative authorization
   B. Meeting minutes
   C. Articles and other resources

Discussion of the Shallcross draft introduction
Dorie Shallcross had written an overview of creativity studies to serve as an introduction to the Commission’s report. Susan sent the draft to Commission members prior to the meeting. Dorie reviewed the piece with the members, and explained that her intent was to set the work of the Commission in a context of studies of creativity in education since the mid-20th century. Members said they believed that the draft fulfilled that historical purpose. Scott recommended including at the end of the introduction a reference to the adoption of the Common Core State Standards by Massachusetts and 45 other states, with additional emphasis on the Common Core’s focus on college and career readiness as a parallel to the Commission’s charge to make the link between creativity in K-12 education and workforce readiness. Scott suggested that the introductory piece be expanded to make explicit connections to assessment systems: the Partnership for the Assessment of Readiness for College and Career (PARCC) and the Programme for International Student Assessment (PISA). Scott and Dorie agreed to collaborate on additional language for the draft introduction.

Discussion of the Hunter-Fadel-Rappaport suggested guidelines for an index
A document with suggested guidelines for an index, written by Dan Hunter, Charles Fadel, and Jonathan Rappaport, was sent to members prior to the meeting. Scott asked about the potential connection to the new educator evaluation system adopted by the Board of Elementary and Secondary Education, which is being piloted this year in Level 4 schools and next year will be
piloted in the 258 Race to the Top districts. Scott also asked if the educator evaluation system used the Danielson rubrics. Susan said she would research this.

Under “Areas of measurement: 1. Curriculum and Offerings” in the draft index guidelines, Ayora commented that he thought it was problematic to determine rankings of the creative content of course offerings based on the course title. Susan explained that ESE uses a USED listing of course titles for its data collection and that these were most applicable to middle and high school departmentalized courses. Several members observed that it would be hard to know the creative content of a course without reviewing its syllabus or lesson plans, or conducting classroom observations. One Commission member suggested that in a pilot a school might choose to bring forth a limited sampling of syllabi, lesson plans, classroom videos, and student work of classes that they felt exemplified best practices. There would need to be a structure and criteria for review of a school’s submission, but this qualitative information would be useful for districts.

Members had few comments about the section “Areas of measurement: 2. Participation in Creative Activities” in the draft guidelines, other than that student perceptions might be gathered from college applications.

Under the draft guidelines section “Areas of measurement: 3. Teacher and Administrator Training,” the members observed that no data is currently available at the state level about the content of professional development in which teachers participate. If this information is necessary for the index, it would have to be collected and submitted by schools, and there would have to be some mechanism for reviewing it.

Under the draft section “Areas of measurement: 4. Recognition of classroom goals,” Susan commented that there is currently an anonymous survey of school culture being conducted at www.tellmass.org. There are small non-academic surveys attached to MCAS at the present. Susan will research what PARCC plans to do with student information surveys. There is no statewide parent attitude survey data available.

In the draft section labeled “Addenda and curriculum,” Scott commented that it would be helpful to list the characteristics of creative work by discipline. Dorie said that categories that might be applied to all disciplines were defined by Torrance (i.e., fluency, flexibility, originality9, and elaboration). She said that these qualities could be identified in a syllabus or lesson plan. Diane suggested taking a sampling of syllabi from a school, or allowing a school to submit examples of effective practices. Ayora described the pre-/post-test design of the Real World Design robotics as a way of gauging attitude change. While the group expressed appreciation for the discussion framework offered in this section, they felt the list of courses was not particularly helpful, because any course could be taught with creativity as a goal.

The group discussed the practical challenges of adding surveys and data collection over the next five years at the same time that districts will be adapting curriculum to new standards, new assessments, and a new educator evaluation system. Scott suggested that another route might be to look at the assessment prototypes that will be released by PARCC in summer 2012, or the (grade 6 up). He

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9. At the meeting, Dorie mistakenly referred to this third concept as “imagination.” She subsequently provided corrected information.
made a case for part of the future work of the Commission, or a successor group, being active in shaping the kinds of assessments PARCC will administer. He felt it would be advantageous to mine information from activities that all schools were already going to be participating in, suggesting that the group outline a plan for looking at student performance on the components of the PARCC assessments that called for the application of higher level skills. Diane offered to investigate the criteria that Connecticut uses to designate “H-O-T” (higher order thinking) Schools.

Review of student work from Expeditionary Learning Schools
Scott had brought a number of publications from K-12 schools, some collaborative class books, some individual. They all shared the characteristics of every child working as researcher, writer, and artist, every child going through a process of creation, critique, and revision. He described the projects as all directed at the outset by teachers to fulfill a certain goal (e.g., investigate fables, record data on wetlands to influence public policy), but carried out by students in ways that gave them responsibility for working within the form to create something new. Members commented on the high quality of imagination and polish, which Scott described as “working to the standards of the profession.” Scott is working with Steve Seidel at the Harvard Graduate School of Education with a class to link these examples to Common Core standards as a way of demonstrating the shifts in the standards.

Next Steps
Members agreed to work on draft material before the April 24 meeting. Ayora will send information of how workforce readiness is defined in Massachusetts to Dorie. Dorie and Scott will expand the introduction. Susan will send information on PARCC’s solicitation for item development to Ayora. Diane, Jonathan, and Susan will draft the implementation section. Susan will ask Mary Kay to work on the Communication strategy section.
Massachusetts Commission to Develop an Index of Creative and Innovative Education in the Public Schools
Chapter 240 of the Acts of 2010
Meeting: April 24, 2012, 10:00 a.m. - 2:00 p.m.
PTC Headquarters, Needham

Attendance: Ayora Berry, Helena Fruscio, Jennifer James, Scott Hartl, Hathalee Higgs, Dan Hunter, Don Landing, Trudy Macero, Gary Maestas, Jonathan Rappaport, Dorie Shallcross, Teri Valentine, Alice Barton, Susan Wheltle

Approval of minutes
Trudy made a motion to accept the minutes of March 12, 2012. There were no corrections. The minutes were accepted.

Communications
Susan reported on a phone conversation with and email from Senator Rosenberg’s aide, Kaitlyn Kelly, about a graduate student from Iowa, Florence Hyunjung Cho, who had requested an internship with the Commission from May through August 2012. Susan indicated that there were no internships available at ESE and that the Commission would have to finish its report by June 30, 2012. She asked if any of the other members wanted to work with an intern on any aspect of Commission work. Dan reported that Ms. Cho had secured a paid internship with the Iowa Commission on Creative and Innovative Education. Susan will respond to Ms Cho.

Ayora and Susan reported on conversations they had with Jean Supel, Research Manager of the UMass Donahue Institute for Research and Evaluation. Jean suggested looking at student surveys that are conducted as part of the National Assessment of Educational Progress (NAEP) and two reports, Preparing the Next Generation of STEM Innovators: Identifying and Developing Our Nation’s Human Capital (2010) by the National Science Foundation, and The Sources of Innovation and Creativity (2005) by Karlyn Adams for the National Center on Education and the Economy. Ayora reported in an email to members on April 13 that he recommended identifying a definition of creativity and innovation, identifying a framework for creativity and innovation in schools, and measuring creativity and innovation with student data, such as information from the SAT Registration questionnaire. He also recommended looking at student responses to writing prompts on MCAS for evidence of creativity.

Scott described the paragraph he had added to Dorie’s review of creativity studies, emailed to members that linked the Commission’s work to the PISA, TIMMS, and PARCC assessments.

Discussion
Members returned to the theme of the need for both qualitative and quantitative data in making assessments of creativity in schools. On the subject of a qualitative approach, Gary described the process of accreditation used by the New England Association of Schools and Colleges (NEASC www.neasc.org). Public high schools are accredited against published standards every six years in a process that begins with a self-study by faculty and culminates in a four-day evaluation visit to the school by a team of experienced educators, which then issues a report with recommendations for the school. (A similar process is available to elementary and middle schools, as well as independent schools and colleges; the most common use of NEASC, however, is at the high school level.)
Gary said that the NEASC model might be instructive as a performance-based assessment of the creative offerings of schools. His district (Plymouth) has a federal I3 grant which also has a review board structure. He also mentioned the recognition structure for becoming a LEED school and suggested that schools could be rated on a progressive scale from “emerging” to “proficient” to “exemplary” in regard to arts opportunities. Jonathan added that charter schools are regularly reviewed through onsite visits by volunteer teams. There was general agreement that an on-site component would be important.

Ayora, Trudy, and Gary talked about the importance of educators having the opportunity to present their students’ work and examples of a school’s approach to creativity. Scott noted that the Commission, with its representatives from education, government, business and organizations, was a unique public/private group and said it would be productive to have teams visiting schools reflect this mix of sectors. He reiterated the importance of connecting the index to college and career readiness.

Jennifer is on the College and Career Readiness Task Force and described the activities of that group, which is working with Linda Noonan and the Massachusetts Business Alliance for Education (MBAE), www.mbae.org. Dan commented that the Creativity Index group should be aware of the developments within the college/career readiness group and vice versa.

**Review of the Implementation and Outreach Plan**

The group discussed the implementation and outreach plan drafted by Diane, Jonathan, and Susan. It is a five year plan that starts small with identifying a consultant to design the index, a group of 10 districts and gradually expands to refine the instrument and add more districts to the data collection.

While some members pressed for the final report to adopt a definition of creativity (Dorie and others proposed language in previous meetings), others were reluctant to be locked into a particular definition, particularly as creativity applies to schools. Dan commented that the Implementation Plan suggested that the Commission needed to work with schools to lay the groundwork for the design of the instrument, rather than designing the instrument in isolation and then applying it to schools. He suggested that it was important to go slowly and let the tool reflect educators’ ideas and sense of what would be feasible.

Gary said that it was important to respect that the school districts are at various levels in understanding and that a gradual beginning would allow time to get the community involved. Dan suggested modifying the Plan to use Year I (2012-2013) to reach the general public, with the design of the index in Year II (2013-2014). He made the motion to do so, seconded by Ayora. The motion passed unanimously. Susan will revise the chart accordingly.

Small groups then worked on a plan for governance, a communications plan, and a projected budget.

**Next Steps**

Members agreed to work on draft material before the April 30 meeting in Malden. Dan will work on an executive summary that answers the questions posed by the legislation. Trudy and Gary will elaborate on the communications plan. Jonathan, Scott, Dorie, and Don will refine their governance plan for a body to guide implementation. Susan, Ayora, and Helena will investigate consultant costs for index design and evaluation components.
The next meetings will be at ESE in Malden on Monday, April 30, at PTC in Needham on Thursday, May 10, and at Walnut Hill School in Natick on June 7; all meetings will run from 10:00 until 2:00.
Approval of minutes
Don made a motion to accept the minutes of April 24, 2012. There were no corrections. The minutes were accepted.

Discussion of draft report sections

Governance draft (chart attached)
At the April 24 meeting Jonathan, Don, Scott Hartl, Dorie, and Jennifer James began work on a governance structure for implementation. Jonathan explained that in their vision Governor, House Majority Leader, and Senate President would appoint an Executive Committee of three people representing the business, education, and creative economy communities. The Executive Committee would then appoint a Board of 15-18 people from business, education, and the creative economy sectors to oversee staff, consultants, and evaluators, who in turn would work with districts. Helena suggested that the Board of Governors might be composed of practitioners, representatives of industry organizations, and related governmental agencies in each of the three categories. Dorie suggested that members of the current Commission should be on the new Executive Committee and Board of Governors to provide continuity of effort. Members present agreed with both suggestions and Jonathan agreed to revise the chart accordingly. Susan mentioned that the legislation mentions the possibility of “interagency” or “intermunicipal” agreements; members present observed that it might be beneficial for there to be a formal agreement among the three education agencies, workforce development agency, and cultural agency to collaborate on and support the implementation of an index.

Communications draft
At the April 24 meeting Gary Maestas and Trudy Macero began work on a communication plan but neither could attend the April 30 meeting. In an email of April 30 Gary agreed to work on the draft and send it to members. His email also said that he thought it was important that the index be designed so that there is alignment with the Common Core Standards so that districts could use the index to publicize how they are implementing the standards through a creative lens.

Four approaches to the measurement of creative opportunities in schools draft (table attached)
On April 27, Susan sent an email with a table in which she summarized the pros and cons of four approaches to designing the index: using existing ESE data, collecting new quantitative data, collecting qualitative evidence, and establishing a system of standards and cross-district observations. As specified in the legislation, all of these approaches focus on opportunities that districts offer, as opposed to evidence of student creativity. Ayora and Don said that it would be preferable to have a measure of student creativity. Jonathan said that it would not be feasible to have a statewide assessment of student creativity; hence he thought it was appropriate for the index to measure self-reported data from schools on their activities. Ayora mentioned that NAEP student
questionnaires provided some models that might be useful. Diane and Hathalee said that having an index of creative opportunities would allow research into the question of whether students’ academic achievement on tests such as MCAS improves when creative opportunities are available. Jonathan and Dorie cited examples of schools with strong creative opportunities in which students had higher achievement than students in schools with similar demographics but few creative opportunities. Diane said she thought that the table summarized well all of the components that the Commission had discussed during the past year, and asked Susan to simplify it to present as an overall plan for the Commission to react to. Susan agreed to do so.

**Estimated costs for implementation (outline attached)**

On April 30, Ayora sent an email with notes on estimated costs for various approaches to creating and index, analyzing data and reporting that he had received from Jean Supel of the UMass Donahue Institute.

The next meetings will be at PTC in Needham on Thursday, May 10, and at Walnut Hill School in Natick on June 7; all meetings will run from 10:00 until 2:00.
Creative Challenge Index: Governance Structure
Prepared by Jonathon Rappaport

Quasi-governmental status
Term limits of 3 years, renewable for second term
Rolling terms (1/3 retire each year)

| Secretary of Education Governor’s Office | Joint Committee on Education Massachusetts Legislature | Joint Committee on Economic Development Massachusetts Legislature |

Executive Committee of the Board of Governors
All three Co-Chairs are non-governmental individuals
One each appointed by the Senate President, the Speaker of the House, and the Governor
Each chair shall be an expert or have experience in the fields of education, public policy, artistic development, workforce development, or cultural development.

<table>
<thead>
<tr>
<th>Co-Chair A</th>
<th>Co-Chair B</th>
<th>Co-Chair C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appointed by MA Senate President</td>
<td>Appointed by Governor</td>
<td>Appointed by MA Speaker of the House</td>
</tr>
</tbody>
</table>

Paid Coordinator
Housed at ESE

Board of Governors
12-18 People (distributed among the categories below, 1/3 of each appointed by each Co-Chair)

Each appointee shall be an expert in one or more of the following fields:
Business, Education, Public Policy, Artistic Development,
Workforce Development, or Cultural Development
Representation from each of the 6 Readiness Center regions should be considered
Members of the Commission to Develop the Index of Creativity and Innovation should be considered

Other Staff:
Paid Consultants Evaluator
Piloters
Site-Visit Teams
Four Approaches to the Measurement of Creative Opportunities in Schools/Districts
Prepared by Susan Wheltle

1. **Use existing quantitative data collected by ESE** (e.g., # teachers of a particular discipline, courses offered, # computers, student achievement data, student growth data, narrowing gaps data, attendance data)

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Data is already available and free, in some cases going back several years</td>
<td>• Indicators chosen would be proxies for creative opportunities</td>
</tr>
<tr>
<td>• could apply analysis to all districts immediately</td>
<td>• measures may not be sufficiently accurate</td>
</tr>
<tr>
<td>• not disruptive to districts</td>
<td>• methodology may be criticized as flawed</td>
</tr>
<tr>
<td>• costs related to analysis and dissemination</td>
<td></td>
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</tbody>
</table>

2. **Collect new quantitative data** (e.g., after school activities, voluntary school-time activities)

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Indicators could be chosen to relate directly to language of legislation</td>
<td>• Costs to districts and state of adding new items</td>
</tr>
<tr>
<td>• measures would be more appropriate than existing data</td>
<td>• no data from past available</td>
</tr>
<tr>
<td></td>
<td>• lag time of collecting new data through an independent survey or through ESE</td>
</tr>
<tr>
<td></td>
<td>• somewhat disruptive for districts</td>
</tr>
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</table>

3. **Collect new qualitative evidence** (e.g., descriptions of projects, student work)

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Indicators could be chosen to relate directly to language of legislation</td>
<td>• Costs to districts and Commission of documenting, recording, and evaluating evidence</td>
</tr>
<tr>
<td>• measures would be more appropriate than existing data</td>
<td>• no data from past available</td>
</tr>
<tr>
<td>• would provide a pool of examples of effective practices</td>
<td>• would have to start with a limited pilot</td>
</tr>
<tr>
<td>• would engage some districts that wanted to demonstrate what they do</td>
<td>• some districts would not participate because of the work involved</td>
</tr>
<tr>
<td>• Commission would define progressive criteria for levels of creative opportunities</td>
<td>• hard to scale up to involve all districts</td>
</tr>
<tr>
<td></td>
<td>• Commission would have to evaluate the quality of materials submitted</td>
</tr>
</tbody>
</table>
4. **Establish a system of standards and cross-district observations** (e.g., use the model of the New England Association of Schools and Colleges or charter school evaluations)

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Commission would have the chance to develop standards for creative/innovative opportunities and descriptive rubrics to apply to schools</td>
<td>• High costs in terms of project management, organization of visiting teams of educators/business people, issuing reports and follow-up</td>
</tr>
<tr>
<td>• measures could be more extensive – possibly including school climate, professional development, educator</td>
<td>• would have to start with a limited pilot</td>
</tr>
<tr>
<td>• would be a direct measure for schools that decided to participate in the system</td>
<td>• would require some sort of membership fee or other sustained funding</td>
</tr>
<tr>
<td>• school visits would be a form of professional development</td>
<td>• an evaluation visit requires preparation on the part of educators, which might be a barrier to participation</td>
</tr>
<tr>
<td></td>
<td>• hard to scale up to involve all districts</td>
</tr>
</tbody>
</table>
Cost estimate for index authoring and evaluation.
Prepared by Ayora Berry (notes of call with Jean Supel, Research Manager, at UMass Donahue Institute)

1. The MA STEM Network (link here) is very likely to invest in an index for STEM competencies, K-employment. Possible measures to leverage for the Creative/Innovative Index down the road and cost saver.

2. Cost for authoring Index
   a. Option 1: leverage existing data
      i. 4 months work (0.5 FTE) w/benefits
      ii. Map, mine, and pull from existing data (e.g. DESE, NCES)
      iii. Might include some original survey work
      iv. Additional benefit: leveraging existing data gives benchmarks (e.g. local or national measures)
      v. Cost: $30-40,000
   
   b. Option 2: create unique survey w/DESE on board (save on permission, recruiting, etc.)
      i. 2 ½ months work
         1. 1 week survey for authoring
         2. 1 month survey in circulation
         3. 2 months analysis and reporting
      ii. Cost: $20-25,000

   c. Option 3: create unique survey w/out DESE
      i. 4 months
         1. 1 month for recruiting, permissions, and writing survey
         2. 1 month survey in circulation
         3. 2 months analysis and reporting
      ii. Cost: $30-40,000

3. Cost for evaluating index implementation
   a. Option 1: authoring and evaluation of index in same house
      i. 4 months work (0.5 FTE)
      ii. Cost:
         1. year 1 for design: $40-60,000
         2. year 2 and on for evaluation: $15-30,000
   
   b. Option 2: evaluation only
      i. Cost: $15-30,000

   c. Note: Jean strongly recommended having evaluator on board during authoring of the index.
Additional notes: EDC, TERC, West ED, UMass Donahue Institute would all give a quote based on a general proposal.
Massachusetts Commission to Develop an Index of Creative and Innovative Education in the Public Schools
Chapter 240 of the Acts of 2010
Meeting: May 10, 2012, 10:00 a.m. - 2:00 p.m.
PTC Headquarters, Needham

Attendance: Jonathan Rappaport, Dan Hunter, Hathalee Higgs, Ayora Berry, Dorie Shallcross, Diane Daily, Susan Wheltle, Teri Valentine, Alice Barton.

Dan thanked Ayora and PTC for providing the room and refreshments.

Approval of Minutes
Diane Daily made a motion to accept the minutes of the last meeting. Jonathan Rappaport seconded, and the minutes were accepted with no corrections.

Draft Report
Susan handed out a first draft of a Commission report. She commended the group for including educators in the process in the report from the beginning stages and the group’s insistence that the Index be more than just a number. She added the searchable database as one of the final products.

The group took some time so everyone could read the report. In terms of feedback, the following points or questions were raised, in addition to a variety of smaller clarifications and corrections:

Advisory board
- Does the proposed advisory board need to be a quasi-governmental body? It was suggested that the appointing executive could be one person rather than a 3-member executive committee. The lead would be a Secretary or Commissioner-level person. The majority work would actually be done by the staff person hired to work with the advisory board.
- “Business,” “cultural community,” are terms that more appropriately described what is meant by the term “creative economy.”
- Rather than articulate specific organizations and agencies from which members would be appointed, membership requirements may be described generally as “people who have distinguished themselves as creative,” or to use the language out of the enabling legislation. Also, participants should be geographically representative, possibly the six Readiness Center regions.

Administrative oversight and staffing
- And who is ultimately responsible for the Index? Where does it “live” in terms of the administering body – ESE, a private focus, a partnership? Does it make sense for this to be a bigger partnership between business and cultural organizations? Dan noted that in Oklahoma has Secretariats involved, but the primary work is being done by a non-profit, Creative OK, which is a 501c (3).
- Are there entities besides ESE who could house the staff person? It was generally held that ESE would lend the most credibility to this person and help the schools take the Index seriously. Dan suggested that the position should be full time. It is possible the person could
be housed at a university, although there is no specific role for universities. MIT, Harvard, Lesley University and UMass were all listed as possibilities.

Reporting

- The Economic Development Committee should be added as an entity that should be reported to by this group.

District participation

- Will most or all of the districts eventually participate? Goal is for all districts to participate, as indicated in the legislation. Maybe there could be an opt in/opt out option at some point.

Professional Development

- Is, or how is, professional development part of the plan? It is not really a part of the plan at the moment, but could be.
- Add “professional development” on page 8, item 6.

Qualitative assessments and technical assistance

- Delivery of technical assistance to schools should be part of the plan. This would be delivered by the/a staff person to schools wanting to improve and follow the model of successful schools. Support for this should be included in the budget.
- The qualitative information that is gathered should be part of the published Index. A public rating, particularly including qualitative information, should play a role in publicizing and providing an incentive for participation and school improvement. Dan suggested that it would be helpful to gather perceptual or attitudinal data from students, teachers, and parents, meaning how they define creativity and innovation and how that is transmitted in schools.
- Ayora suggested a spot check type of study, which would provide a way to validate assumptions about input and output (what inputs lead to what outputs) – students could be asked about inputs. This should be done in the first year, if possible, before the Index is launched and is important from a research perspective.

Budget

- The budget should be broken down with cost categories, e.g., staff, research and evaluation, etc. See p. 7 of the draft report.

Funding

- The financial section: clarify/expand on what happens in each year of the plan to show how capacity is being built over time. It was suggested that the budget be presented as 5-year rather than 6 year, for something like $500,000 over that time period, secured through public and private funding. Ayora noted that the searchable database would cost $5,000-$10,000.
- What is the role of the state in funding? It could at least be funded partially, or state funds matched, by private organizations and/or foundations. The list of foundations that might be prevailed on to provide funding that the group brainstormed included: Gates, Pew, Hewlett, Barr, Boston, Wal-Mart, Duke, Ford, MacArthur, Annenberg, and Wallace.

Websites to note in the report: Expeditionary Learning, CT Curriculum, Arts Education Partnership. Some people pledged to send other ideas for websites.
Possible members of an expert review panel were brainstormed:

Ken Robinson, Howard Gardner, Theresa Amabile, Daniel Pink, Steve Seidel, Lois Hetland, Bob Sternberg, Jessica Hoffman Davis, Tony Wagner, Warren Buffett and/or other business leaders, Sherrie Starman (CEO of Crayola), CEO of Boeing or Boaz, Elon Munsk, Charles Fadel, Bill Gates, Governor Bill Anoatubby of the Chickasaw Tribe, Tom Vilsak, John Madah, Ellen Winner, Sally Reiss, Michelle Obama, Arne Duncan, Richard Olin, Todd Machover (MIT Media Lab), and Peter Reynolds (author/illustrator).

Follow-up:
Dan will submit an introduction aimed at legislators to Susan by May 17th.

Susan will contact Gary, Trudy and MaryKay about outreach recommendations to be included in the report.

Susan will try to produce another draft by May 22nd.

Jonathan will redraft the proposed organizational/governance chart by May 17th.
Massachusetts Commission to Develop an Index of Creative and Innovative Education in the Public Schools  
Chapter 240 of the Acts of 2010  
Meeting: June 7, 2012, 10 a.m. – 2 p.m.  
Walnut Hill School of the Arts, Natick

**Attendance:** Dan Hunter, Hatheelee Higgs, Ayora Berry, Diane Daily, Dorie Shallcross, Jonathan Rappaport, Jennifer James Price (by phone), Scott Hartl, Gary Maestas, Helena Fruscio, Susan Wheltle, Mitchell Chester, Teri Valentine, Alice Barton

Commissioner Chester thanked the members for their work on the report. He said that he had read it and believed that the objectives in business plan it laid out were achievable. He asked for comments on the report.

Members commented on the latest draft of the Commission report, making the following points and comments:

- It is a good synthesis of the discussions that the Commission had particularly the Commission’s important conceptualization of the Index as having both quantitative and qualitative components.
- It is significant that the recommended staff for the Index work is to be housed at the Department of Elementary and Secondary Education and integrated into the work of the Department.
- The report needs to have more mention of the role of the cultural sector and the creative economy.
- A suggestion was made to add to the budget areas of the report that it was expected there would be a 50-50 (or 1-to-1) match between private and public funds. There was discussion whether the budget should be decreased, but the final decision was to leave the proposed amount as is and note in the report that members of the Commission are ready to work on securing funding from the private sector.
- The report needs to include a public awareness or outreach component in order to build long-term support, perhaps in the form of public hearings. This would demonstrate that MA is taking a leading role in this important issue. It is significant for the Index to be perceived as a Massachusetts “first,” even though other states, particularly Oklahoma, are working on similar legislation and initiatives.
- The report needs to emphasize that the effort would be part of building a “pipeline” of creative talent for businesses. Language should be added to the Executive Summary, and other sections, about the importance of this effort to business. There should be a recommendation pertaining to research and development to appeal to the business perspective.
- Key business organizations such as the Massachusetts Business Alliance for Education and the Massachusetts Business Roundtable are aware of the draft.

Dan suggested that business should be a key target audience for outreach. There could be forums or small meetings with business leaders on the Index. He also suggested identifying a business leader to submit an op ed piece to newspapers and other media outlets.
The Commissioner noted that the recommendations sit in busy landscape of elections and K-12 reforms such as educator evaluation, new regulations for teachers of English Language Learners with more stringent professional development requirements, and standards/assessment implementation, and that it was important the Index be knitted into this work and not become an independent initiative.

Scott emphasized the need to embed creativity and the Index as part of implementing the Common Core State Standards. Creativity is implied, although not explicitly stated, by the Standards. The Commission’s recommendations should become part of Massachusetts’ implementation of the Standards, with creativity and innovation identified as a higher-order skill. That is a way to connect with the business community. He mentioned being at the Education Funders’ conference recently and the concern that representatives from foundations that had backed the Common Core development that the Standards would become a checklist, rather than transformative for workforce and college readiness. He said he thought funders such as Hewlett and Gates would be interested in supporting the concept of creativity, innovation, and students’ developing high standards for their work as part of the Common Core. Jonathan suggested making the link to the revised Bloom’s Taxonomy of skills, which places creativity at the top of higher order skills.

Commissioner Chester noted that MA is participating in the PISA assessment as an individual state, not just as part of the nation. This assessment comes closer than others to focusing more on what students can do with what they’ve learned, rather than just what they have learned. Perhaps this is a connection to creativity that could be emphasized.

Dan suggested reworking the Executive Summary of the report to make it grab the interest of business leaders and legislators from the beginning. He offered to work on the first few paragraphs to accomplish this.

Dan suggested that the project could start by recognizing what teachers are already doing (i.e., creative teaching), which would acknowledge creativity in the classroom. Scott thought that this could be an attractive story for the press. Gary stated it was important to be creative in how the Index is implemented, to find creative ways to get schools to rally around creativity rather than just see it as another thing to implement. Perhaps a good starting place would be with recognition of teachers already being creativity. Several people offered short anecdotes of such teachers. Susan recommended people email her short anecdotes of creative teachers or school activities, or business linkages that were creative.

Jonathan suggested starting with the recognition program to set the tone for the project. Susan suggested the PARCC Educator Leader Cadre model (24 selected statewide, from each PARCC state, to become ambassadors for PARCC resources and assessments). Dan and Ayora added that the recognition activity could be designed to bring together business people, students, and educators.

Helena wondered if there were some examples of some business-education links that could be placed into the report. Ayora noted that STEM businesses had already bought into the idea of innovation. Ayora and Dan both agreed to provide a couple of vignettes including business links. Various people agreed to submit their assigned pieces, preferably by June 8th and to submit any other editing suggestions as well.
It was noted that the Commission ceases to exist as of June 30th, and the steps that will take place between now and the time when report is submitted to the Legislature. Since this is expected to be the last meeting, everyone was thanked to their participation.
Appendix D: History of Academic Study of Creativity

A Brief Overview of Creativity in Education in the United States – From Then Until Now
Prepared by Doris J. Shallcross, Ed.D.

As the Commonwealth of Massachusetts launches an historic mission to afford every youngster in its public schools the opportunity to engage his/her innate creative ability to its fullest, it seems appropriate to view briefly what has gone on before in efforts toward creative education in the United States.

Although considerable research on creativity had existed beforehand, it was J. P. Guilford’s address to the American Psychological Association in 1950 that became the impetus to seriously consider making creativity part of the education process in the United States. Guilford stated at the time: “The most common complaint I have heard concerning our college graduates . . . is that while they can do assigned tasks with a show of mastery of the techniques they have learned, they are much too helpless when called upon to solve a problem where new paths are demanded.”

In 1962, Guilford presented his theoretical model *Structure of the Intellect* which gave credence to the thesis that there are more ways to measure human intelligence than the I.Q. More and more creativity researchers then turned their attention to addressing creative intelligence as a matter for education. E. Paul Torrance at the University of Minnesota developed the Minnesota Tests for Creativity (now the Torrance Tests for Creativity). These tests, both verbal and non-verbal, and still widely used today, measure primarily the ability to be fluent, flexible, imaginative, and elaborative. The significance of the work by Frank Barron and Donald MacKinnon of the University of California’s Institute of Personality Assessment and Research lay in the work with writers and architects respectively. MacKinnon, for example, found that the most highly effective architects, rated by their peers, valued themselves as sources of information equal to any outside sources for their creations.

Carl Rogers, then at the University of Wisconsin, conducted research on setting safe climates for creative expression to emerge. In his two-volume work *Stimulating Creativity*, Morris Stein, then at New York University, among many major contributions, presented ways in which a creative person carries out a process of working. A. H. Maslow, then at Brandeis, addressed in his research the emotional blocks to creative expression. Then at the University of Buffalo, Sidney J. Parnes’ work has centered on teaching creative behavior. He established the first undergraduate class in creativity. Much of his work has been based on the important principle of deferred judgment.

And we, of course, recognize our Massachusetts contributors: Teresa Amabile, Howard Gardner, and David Perkins. First at Brandeis and now at Harvard, Teresa Amabile’s important early contributions to the field were in creativity and motivation. Multiple Intelligences by Howard Gardner of Harvard’s Project Zero, added greatly to the literature, expanding educators’ views of the mind’s capacity. And co-founder of Harvard’s Project Zero, David Perkins presented his creativity research in the arts and sciences in his significant and amusing book *The Mind’s Best Work*. 
With the advent of Gifted Education in the 1970s, creative education programs were in demand, for much of the gifted education work dealt with creative and critical thinking. As that movement caught on there was more and more demand for training of teachers. Classes in creativity began to emerge in colleges and universities. Training was also available through non-profit creativity organizations. The oldest and largest non-profit organization is the Creative Education Foundation, founded in 1954 by Buffalo businessman Alex Osborn. Osborn, author of *Applied Imagination*, developed the technique of Brainstorming. The foundation is now headquartered in Amherst, MA. The organization has been operating an annual Creative Problem Solving Institute since 1954, which thousands of teachers as well as other professionals have attended. The Creative Education Foundation also publishes the oldest creativity journal *The Journal of Creative Behavior*.

Alex Osborn’s call in the early 1950s for more creative thinking in the business world has picked up momentum in the last several years as the economy in the United States has suffered. The recent call is substantiated by the results of IBM’s fourth biennial Global CEO Study in 2010 which interviewed over 1,500 CEOs, general managers, and public sector leaders. These executives believe that competing in today’s complex economy requires, more than any other single quality, creativity. According to Scott Noppe-Brandon, et al, of the Lincoln Center Institute’s *Imagination Conversations*, several similar reports have revealed the same outcomes. The following are some examples.

- **Tough Choices or Tough Times; The Report of the New Commission on the Skills of the American Workforce**, released by the National Center on Education and the Economy (2007) lists creativity and innovation among the qualities that “may spell the difference between success and failure” for the nation’s workforce.

- **Are They Really Ready to Work?** was a 2006 study conducted by the Conference Board, Corporate Voices for Working Families, the Partnership for 21st Century Skills, and the Society for Human Resource Management. Out of hundreds of managers across the country, 73% think the skill of creativity/innovation will increase in importance in the coming years, but only 21.5% rate new job entrants with four-year college diplomas as “excellent” in this area.

- **Beyond the Three Rs: Voter Attitudes toward 21st Century Skills**, a 2007 national poll commissioned by the Partnership for 21st Century Skills, makes clear that voters are no less aware of the economic turning point America has reached. Although nearly half of voters rank creativity/innovation as a 9 or 10 on a scale of 0 to 10, just 5% give schools a 9 or 10 in teaching this skill.

In addition to the types of studies mentioned above, there has been an outpouring of books, talks, and conferences on the need for creativity to be part of the education of our children. Certainly one of the most recognizable and quoted figures is Great Britain’s Sir Ken Robinson. Robinson led the British government’s 1998 advisory committee on creative and cultural education, a massive inquiry into the significance of creativity in the educational system and the economy. His latest book *The Element: How Finding Your Passion Changes Everything*, a deep look at creativity and education, was published in 2009. As a recurring theme in his TED Talks on TV, Robinson asks, “Do school kill creativity?” And he continues to make a case for school systems that nurture rather than undermine creativity. His work has hit the U.S. by storm.
In *A Whole New Mind*, Daniel Pink warns that the future belongs to different kinds of thinkers, that is, right-brain thinkers. He claims that the era of left-brain dominance and the Information Age that it engendered, are giving way to a new world in which right-brain qualities – inventiveness, empathy, meaning – predominate. And Malcolm Gladwell’s contributions to recent literature about the human mind have had significant impact. His first book *The Tipping Point* redefined how we understand the world around us, and his later book *Blink* is a book about how we think without thinking. Eric Liu and Scott Noppe-Brandon in their powerful book *Imagination First*, proclaim that the best companies know that innovative thinking is the only competitive advantage that can’t be outsourced. And the best schools are those with deep cultures of creative problem solving. Theirs is a guide to getting unstuck, reframing challenges, and helping others to do the same.

Today scores of college classes exist in creativity and several graduate degree programs are in place as well. For example, graduate programs exist or have existed at the State University of New York at Buffalo, University of Minnesota, University of Georgia, University of California/Davis, UMass/Boston, and UMass/Amherst. As a result, many elementary and secondary teachers have been exposed to methods of teaching to evoke creative behavior. Therefore many elementary and secondary students are the fortunate recipients. However, just as arts budgets are cut in elementary and secondary schools when money is tight, these college programs in creativity suffer the same plight. The emphasis is refocused on what are considered the basic vocational and professional skills.

That the Commonwealth of Massachusetts has taken this bold step of inaugurating such learning as regular practice is more than commendable; it is necessary for the welfare of our individual children and the thriving of the Commonwealth. Massachusetts can be rightly proud to establish this precedent for itself and for the rest of the country.
Appendix E: Types of data available from the Department of Elementary and Secondary Education

The Educator Personnel Information Management System (EPIMS) includes data on the assignments of teachers in each district. Through this system one can track, for example, the number of teachers in a particular discipline (e.g., music), the levels at which they teach (e.g., elementary, middle, high), and the names of courses taught (e.g., chorus).

The Student Information Management System (SIMS) and Student Course Schedule (SCS) provide a variety of information on student demographics, achievement on statewide assessments, and courses taken. Combining data from SCS and EPIMS can provide information such as the ratio of students to teachers in a particular discipline in a particular school.

See www.doe.mass.edu/infoservices/data.
Appendix F: Subgroup reports

Massachusetts Innovation Index: Suggested Guidelines
Prepared by Dan Hunter, Charles Fadel, and Jonathan Rappaport

The following is a suggested prototype to facilitate discussion and establishment of the Massachusetts Innovation Index. It is intended to be a starting point open for revision, amendment, and additions by the Massachusetts Commission on Creative and Innovative Education.

Goals of the Index:

- Establish innovative and creative work as a priority in Massachusetts schools
- Build new expectations among students, parents, teachers and administrators for school work that fosters innovation skills
- Establish a tool for monitoring progress
- Give students the skills necessary to succeed in the 21st century, including the following:
  - Create a world-class innovative workforce for the 21st century
  - Prepare students to be college ready

Areas of Measurement

1. What is offered? Curriculum & other offerings

What happens in the classroom is the most important educational activity. The Department of Elementary & Secondary Education already monitors curriculum and secondary-level course offerings. The Innovation Index will provide rankings for course offerings that enhance innovative skills. In addition, after-school activities such as debate club, drama, entrepreneurs club are also considered.

2. How many participate? Participation in creative activities

Measuring student participation in creative activities in relationship to the number of students in the school gives a measurement of the creative climate of the school. This would measure after-school activities as well as classroom. For example, how many students take part in self-designed science fair projects?

3. What is teacher readiness? Teacher & administrator training, experience & expertise

If creativity and innovation are not part of a teacher’s background, how well can they foster student innovation? Moreover, even the subjects listed below can be taught devoid from creativity (for instance, merely copying a drawing is not creative, even if Arts-centric); and creativity must be fostered in all subjects, including STEM areas as well: a math teacher constantly asking for innovative solutions to problems does promote creativity. This measurement would sample teacher and administrator training, experience and expertise. The school would note if a teacher has specialized training in a creative endeavor. For example, she may have a degree in creative writing. He may run a business out of his home. Another may be a weekend sculptor. A teacher may have
completed additional training in creative teaching through a continuing-education institute. Teacher training, experience and expertise might include the science teacher who makes a documentary film with her students. The task force should also consider interdisciplinary work. For example, the English teacher who works with the history teacher to have students write fictional narratives of people living in another era.

4. How widely understood is the initiative? Recognition of classroom goals

Starting in the first year, the Innovation Index can survey attitudes, perceptions and expectations of the key school constituents: students, parents, teachers and administrators. One of the goals of the Index is to change our expectation of schools, from one that dwells primarily on content to one that fosters creativity and innovation. As school and community expectations expand, revised classroom activity and curricula will follow. The survey should be a self-assessment to be repeated in years to come.

Addenda

Curiosity→ Inquiry→ Invention→ Critical Revisions→
Self-Motivated Entrepreneurship →Communication

Projects and activities should contain the above steps taken by individual students

Curriculum
Task Force to recommend # hours per week in each area

Non-directed reading/writing, which includes a variety of writing types: expository, descriptive, narrative, persuasive
  Writing in any course
  Essay questions in tests, projects, and assignments
  Fiction/non-fiction/poetry
  Journey entries
  Writing portfolios

Individual or small group novel STEM projects
  Student-designed experiment
  Architecture and engineering projects
  Robotics
  Computer programming

Business Entrepreneurship
  Business planning
  Marketing
  Advertising design

Sequential arts education
  Media Arts
  Graphic design
Video or TV production
Print design and lay-out

Visual Arts
Original two-dimensional artwork
Original three-dimensional artwork
Creative use of mixed media
Collaborative art, such as a mural project
Exhibit design, set-up

Dance
Choreography
Dance performance (student directed)
Dance design technology (choreography software)

Music
Performance (student directed)
Improvisation
Musical Composition (songs, instrumental pieces)
Arranging
Music technology (music notation software in composing, arranging)

Drama/Theatre
Play or screen writing
Set/costume design
Acting
Improvisation
Directing
Lighting design
Sound design

Additional Activities (In-School or After School)
Fashion design
Entrepreneurs club
Graphic design
School newspaper, yearbook
Literary magazine
Debate club/team
Industrial design
Landscape design
Film or video production
Still photography
Architecture
Furniture design
Environmental & infrastructure design
Urban planning
Culinary arts
Other activities can be added.

*Additional points to consider:*

All of the above items can also be measured for participation rates.

*Pilot program:* The first year of the Innovation Index should be pilot year to establish baseline measurements. For example, if a school has a debate team, what is the average number of participants in schools across Massachusetts? Participation above the average would increase the Index score. The task force can set up the index to be phased in over a period of years so that the measurement is not viewed as punitive. This gives schools time to plan for changes and adjustments in their existing work. For example, a school cannot be expected to add a drama program in one year. Teachers who understand the new expectations in the years ahead can prepare through workshops and summer training.

*Student/Teacher ratios:* For example, how many certified arts-education specialists teach at the school and what is their student/teacher ratio? What percentage of students in the school takes one or more arts courses?

*Innovation Scale:* The task force should adopt a scale. For example, a scale can be based on the number of classroom hours in a week. If a school has 6-hour days, and a 30-hour week, the scale might be 0—300. *Self-designed* student projects in a biology class might be accorded 30 points and so on. The following is an example:

**Year One—Scale 0—300**

Based a 30-hour school week.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-directed reading/writing</td>
<td>50</td>
</tr>
<tr>
<td>Writing in any course</td>
<td></td>
</tr>
<tr>
<td>Essay questions in tests</td>
<td></td>
</tr>
<tr>
<td>Fiction/non-fiction/poetry</td>
<td></td>
</tr>
<tr>
<td>Individual or small group novel STEM projects</td>
<td>50</td>
</tr>
<tr>
<td>Sequential arts education</td>
<td>25</td>
</tr>
<tr>
<td>Minimum 2.5 hours</td>
<td></td>
</tr>
<tr>
<td>Classroom music composition</td>
<td>25</td>
</tr>
<tr>
<td>Minimum 2.5 hours</td>
<td></td>
</tr>
<tr>
<td>Drama/Theater</td>
<td>25</td>
</tr>
<tr>
<td>In school/afterschool (# of participants)</td>
<td></td>
</tr>
<tr>
<td>Additional Activities (# of participants)</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>each</td>
</tr>
</tbody>
</table>
Fashion design
Entrepreneurs club
Graphic design
School newspaper
Literary magazine
Debate club/team
Appendix G: Cost Breakdown by Year

The budget below represents a one-to-one match of public funds and private foundation funds.

Budget Narrative

Year 1: Planning and Design $200,000
Year 2: Limited Pilot and Refinement of Index $200,000
Year 3: Expanded Pilot and Initial Documentation $185,000
Year 4: Large-scale Pilot and Documentation $125,000
Year 5 (and beyond): Full Implementation $125,000
Total $835,000

Budget Narrative

Year 1: Planning and Design $200,000
ESE project manager, 1 FTE with benefits, travel, overhead $72,000
Write project specifications and solicitation for consultant; convene meetings for Executive Committee and Advisory Board to select consultant and Expert Panel; write meeting minutes; conduct research and outreach; recruit 50 schools in 18 pilot districts (3 in 6 regions-Cohort I) to advise on Index components (4 meetings per year)
Consultant/Evaluator $60,000
Identify relevant ESE data elements and additional data needed; design survey questions if needed; identify representative sample of districts/schools to serve as pilots; develop the components of the Index and its reporting mechanisms with the help of districts; write annual report
Panel of 6 experts and scholars for a peer review of the proposed Index design $12,000
Travel and stipends for Cohort I schools (4 meetings per year) $36,000
Space for 4 meetings for pilot schools; 50-75 people per meeting $20,000

Year 2: Limited Pilot and Refinement of Index $200,000
ESE project manager, 1 FTE with benefits, travel, overhead $72,000
Manage contract with consultant; convene meetings for Executive Committee and Advisory Board; write meeting minutes; conduct research and outreach; manage pilot in 50 schools; for Year 3, recruit 100 schools in 18 pilot districts (Cohort I) and 50 from Cohort II to pilot Index components (4 meetings per year)
Consultant/Evaluator $60,000
Refine the components of the Index based on the pilot; develop a procedure for selecting schools for further documentation; conduct Index data analysis; develop a procedure for reviewing and assessing documentation submitted and visiting schools; convene panel to review results of pilot; write annual report
Panel of 6 experts and scholars for a peer review of the proposed Index design $12,000
Travel and stipends for Cohort I schools (4 meetings per year) $36,000
Space for 4 meetings for pilot schools; 100-150 people per meeting $20,000
**Year 3: Expanded Pilot and Initial Documentation**

- **ESE project manager, 1 FTE with benefits, travel, overhead** $75,000
  - Manage contract with consultant; convene meetings for Executive Committee and Advisory Board; write meeting minutes; conduct research and outreach; manage pilot in 150 schools; for Year 4, conduct outreach to all Massachusetts public school districts; document procedure for reviewing and assessing documentation submitted and visiting schools

  **Consultant/Evaluator** $30,000
  - Conduct Index data analysis; write final report

- **Travel and stipends for Cohort I and 2 schools (2 meetings per year)** $70,000

- **Space for 2 meetings for pilot schools; 100-150 people per meeting** $10,000

**Year 4: Large-scale Pilot and Documentation**

- **ESE project manager, 1 FTE with benefits, travel, overhead** $75,000
  - Manage contract with consultant; convene meetings for Executive Committee and Advisory Board; write meeting minutes; conduct research and outreach; manage pilot in all schools; provide technical assistance; document exemplary schools for website; create searchable database of creative opportunities

  **Consultant/Evaluator** $30,000
  - Conduct Index data analysis; write final report

- **Space for 2 Creativity Index conferences; 200-250 people per meeting** $20,000

**Year 5 (and beyond): Full Implementation**

- **ESE project manager, 1 FTE with benefits, travel, overhead** $75,000
  - Manage contract with consultant; convene meetings for Executive Committee and Advisory Board; write meeting minutes; conduct research and outreach; manage pilot in all schools; provide technical assistance; document exemplary schools for website; publish searchable database of creative opportunities

  **Consultant/Evaluator** $30,000
  - Conduct Index data analysis; write final report

- **Space for 2 Creativity Index conferences; 200-250 people per meeting** $20,000

**Possible non-governmental funding sources** for the piloting and implementation of the Index:

Appendix H: Communications Materials

Creative School Index: Communication Methods
Prepared by Gary Maestas

Creative School Index (CSI) communication is key to the introduction, implementation and success of the program. This guideline is prepared with the intent of creating a guide for stakeholders in an effort to foster consistent awareness of who, what, when where and why.

Printed Communication

- Newsletters – sent from the ESE on cycled basis
- Brochures – Outline of the CSI process
- Memos from ESE highlighting the full circle nature of CSI and MCAS etc…

Electronic Materials Available on the ESE website

- ESE Calendar – identifying CSI benchmarks
- District Reports – includes CSI information on district and ESE school report cards
- District Policies – sharing of district policies available as a resource connecting CSI districts

Electronic Communication

- Phone ROBO call – provide sample scripts that can allow outreach to each community. This has become the most efficient way to dispense concise on time messaging that helps share accurate information.
- Email – regular email communication with stakeholders
- Educational Public TV – Development of Public Service Announcement messages highlighting the CSI benchmarks.
**RACE Flow Chart**

A formal communication plan should be developed for all major CSI phases. The following RACE flow chart assist in assuring that an appropriate message is developed, shared with the appropriate audiences in the appropriate manner, and is evaluated for effectiveness.

**RESEARCH:** Goal setting based on research and direct involvement with stakeholders to determine the key message.

**ANALYZE:** Communication efforts are planned on a systematic basis to support the achievements of the organization’s goals and objectives.

**COMMUNICATE:** The appropriate channel to reach the determined audience is employed.

**EVALUATE:** Determine that the communication practices were successful and the audience has a high level of satisfaction with the results.

<table>
<thead>
<tr>
<th><strong>RESEARCH</strong></th>
<th><strong>ANALYZE</strong></th>
<th><strong>COMMUNICATE</strong></th>
<th><strong>EVALUATE</strong></th>
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</thead>
<tbody>
<tr>
<td><em>Develop a key message.</em></td>
<td><em>Determine who needs to know.</em></td>
<td><em>Find the best channel for the audience.</em></td>
<td><em>Rate the effectiveness.</em></td>
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</table>
| Direct involvement with stakeholders to determine needs for information and knowledge. | Students  
Parents  
Teachers  
Principals  
Support staff  
Administrators  
Board of Education  
Taxpayers  
Senior Citizens  
Business Leaders  
Media  
PTA  
School Council  
Legislators  
Neighborhood Groups  
School Community  
New Residents of District  
Neighboring School Districts  
Police  
Fire  
Hospital | Print  
Local Newspapers  
School Newsletters  
District News Pages  
District Mail  
Brochure/Pamphlet  
Press Release | Engage in both formal and informal evaluation practices.  
Determine the audience level of satisfaction with practice.  
Upon evaluation, create, modify, or discontinue practice or project. |
| Research audience perceptions, desires, interests, and opinions. | Research informational needs. | Key message formed with useful and usable information. |
Appendix I: Sample survey questions on perceptions of creativity

Annual Index Benchmarking
Prepared by Doris Shallcross and Ayora Berry

This index is to measure opportunities for creativity and innovation in public schools. Each year a benchmark study would be carried out to identify the correlation between opportunities and outcomes in piloting schools. The survey questions below serve as examples.

CHILDREN – grades 3 or 4, 6, and 8
1. What is creativity?
2. Are you creative?
3. What do you do that is creative?
4. Is there time in school to be creative?
5. Is there time after school to be creative?

PARENTS
1. Is/are your child(ren) creative?
2. Do you consider yourself creative?
3. Do you believe creativity should be taught in the schools?
4. Is/are you child(ren) encouraged to be creative in school?

TEACHERS
1. What is creativity?
2. Are you creative?
3. Do you think creativity should be taught in schools?
4. Are you encouraged to teach creativity?
5. Have you received any training in how to teach for creativity?
Appendix J: Bibliography and websites considered


### Websites reviewed:

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<td>New England Association of Schools and Colleges, accreditation</td>
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