April 25, 2016 Staples High School

WESTPORT BOARD OF EDUCATION

*AGENDA

(Agenda Subject to Modification in Accordance with Law)

PUBLIC CALL TO ORDER:
7:00 p.m., Staples High School, Room 333, Pupil Services Conference Room

ANTICIPATED EXECUTIVE SESSION: Certified Staff Non-Renewals

RESUME PUBLIC SESSION

PLEDGE OF ALLEGIANCE: Staples High School, Cafeteria B (Room 301), 7:30 p.m.

ANNOUNCEMENTS FROM BOARD AND ADMINISTRATION

MINUTES: April, 11 (Brown Bag Meeting) and April 11, 2016 BOE p.m. Meeting

PUBLIC QUESTIONS/COMMENTS ON NON-AGENDA ITEMS (15 MINUTES)

DISCUSSION:

1. Proposed Implementation of Energy Performance Contract as it Relates to Westport Board of Education	(Encl.)	Mr. Loselle Mr. Longo

DISCUSSION/ACTION:

1. Non-Renewal of Certified Teaching Staff	(Encl.)	Mr. Bayers
2. Select Capital Improvement Bid Documents	(Encl.)	Mr. Longo

UPDATES:

1. Westport 2025	(Encl.)	Mr. D'Amico Ms. Droller
2. Quarterly Financial Report: July 1, 2015-March 31, 2016	(Encl.)	Mr. Longo
3. Health and Medical Insurance Revenues and Expenses; Projected Year-End Balance in Health Reserve Account	(Encl.)	Mr. Longo

ADJOURNMENT

*A 2/3 vote is required to go to executive session, to add a topic to the agenda of a regular meeting, or to start a new topic after 10:30 p.m.
The meeting can also be viewed on cable TV on channel 78; Frontier TV channel 99 and by video stream @www.westport.k12.ct.us

PUBLIC PARTICIPATION WELCOME USING THE FOLLOWING GUIDELINES:

- Comment on non-agenda topics will occur during the first 15 minutes *except* when staff or guest presentations are scheduled.
- Board will not engage in dialogue on non-agenda items.
- Public may speak as agenda topics come up for discussion or information.
- Speakers on non-agenda items are limited to 2 minutes each, except by prior arrangement with chair.
- Speakers on agenda items are limited to 3 minutes each, except by prior arrangement with chair.
- Speakers must give name and use microphone.
- Responses to questions may be deferred if answers not immediately available.
- Public comment is normally not invited for topics listed for action after having been publicly discussed at one or more meetings.

WESTPORT, CONNECTICUT

JAMES S. MARPE
First Selectman

MEMO

TO: Westport Board of Education Members

FROM: James S. Marpe, First Selectman

DATE: April 13, 2016

RE: EPC Committee Presentation on April 25

The attached presentation was developed by the Selectman's Energy Performance Contracting Committee for a package of Energy Conservation Measures ("ECM") designed to save energy, save money, and reduce carbon emissions across 12 town buildings, including all 8 schools. Please review the document in preparation for the EPC Committee's discussion at the April 25 Board of Education meeting.

Though the presentation discusses all recommended ECMs, not solely those proposed for the schools, there is considerable detail with respect to the specific measures proposed for each school. The overall economics of the proposal are discussed in total because the recommendation is for a comprehensive project for the entire town.

We direct your attention to several specific items in the presentation.

- The selection criteria for the recommended ECMs are discussed on pages 3-4. You will see the criteria relate to cost savings, payback period, complexity, efficiencies, and ability to repay in varying energy cost scenarios.
- The discussion of Recommended ECMs on page 6 gives a short explanation of each recommended ECM and how it saves energy and costs.
- The discussion of ECMs which were evaluated, but not recommended, and the reasons for those decisions are discussed on page 7 and further detail is provided in Appendix A and Appendix B.

With specific reference to the schools, the EPC Committee took care to seek consistency across all schools. By and large, similar ECMs are recommended in all schools, unless they are unnecessary for a particular school, because they have already been implemented or are not relevant. Consideration was also taken to reduce the number of different replacement parts needing to be stocked. For example, multiple lamps and ballasts currently existing in many school buildings will be consolidated to a few common components. The implementation of the lighting ECMs in the schools will also greatly reduce the time, effort and operating expenses associated with the current high level of required maintenance.

As discussed above, a number of ECMs were considered for the schools which are not recommended, but this is without prejudice to the schools. As can be seen from the tables in Appendix A, these ECMs were predominantly large capital expenditures with very long payback periods. The guidance given to the EPC Committee from the Board of Finance was that these items were more appropriately addressed through the regular long term capital budgeting process.

The EPC Committee looks forward to discussing its recommendations with the Board of Education at the April 25 meeting.

cc: Dewey Loselle, Operations Director
Dr. Elliott Landon, Superintendent of Schools
Elio Longo, Director of Business Operations

NORESCO
A United Technologies

EPC COMMITTEE RECOMMENDATION TO THE WESTPORT BOARD OF FINANCE

Recommended Package

Total Project Cost: $8.37 million
Amount to Be Financed Net of Utility Incentives: $6.84 million
Energy Cost Savings Over a 10-Year Financing Term: $8.70 million
Net Project Payback: 8.5 years
(See Table 6)

Following completion of the full Investment Grade Energy Audit (IGEA) by NORESCO, the Energy Performance Contract (EPC) Committee recommends a package of thirteen specific energy conservation measures (ECMs) across twelve Westport public buildings that can be financed using guaranteed savings over a 10-year term and create an annual net excess cashflow with a net present value of $911,000 over that period. The estimated total project cost of $8.37 million will be reduced by estimated Eversource incentive payments of $1.5 million, for a net price at completion of $6.84 million. After the 10-year financing term, all savings will continue to accrue to the benefit of the Town, which will result in a net present value of $4.9 million over a conservative 15-year functional life.

At this time, the EPC Committee is asking for an endorsement of this recommended package of ECMs. If the Westport Board of Finance (BOF) finds this package of measures acceptable, NORESCO will commence with procuring competitive pricing from subcontractors for the scope of work, and prepare the final IGEA document with a go-to-contract price for approval by the BOF and all other necessary committees.

Investment Grade Energy Audit Introduction

The completed IGEA provides the Town a means to identify, prioritize, and implement the most cost-beneficial and critically needed energy-related infrastructure upgrades. All the identified ECMs in this study will be necessary or desirable for the Town to complete in the future, but implementing them all at this time would cost in excess of $16.96 million. Instead, the $8.37 million recommended ECM package consists of those measures that will provide the Town the highest return on investment and the greatest near-term positive benefits to users of all buildings included in the IGEA. Please refer to Appendix A for the EntelliChoice® tables for further information on all of the ECMs investigated for the IGEA.

The rate of return estimates include incentives through Eversource that NORESCO will secure for the Town prior to implementation and that will be paid out at project completion. The EPC Committee's deliberate selection of projects based on return criteria provides the Town with 77% of the total potential cost savings, and 74% of the total potential CO_2 reduction at less than half the cost of the total measures analyzed in the audit. The two largest comprehensive measures (new LED lighting and energy management system upgrades) consist of well over 15,000 individual upgrades, and both will be closely managed by the NORESCO project management team to ensure a safe, consistent, and high-quality installation in a timely manner. Over a half million dollars of annual energy cost savings will accrue to the Town from these two measures alone. Combined with the other cost-effective recommended measures, a total of $750,000 in annual cost savings will be achieved in the first year after completion of the expedited 15-month estimated construction and commissioning schedule.

The recommendations in the comprehensive IGEA report will provide long-term, sustainable and cost-effective operating cost savings, create an optimum environment for working and learning, and significantly reduce the Town's carbon footprint. Town and school personnel have worked together with NORESCO in a collaborative, thorough, and detailed project development process to develop and review the ECMs included in the scope of work contained in the IGEA. The recommended package is summarized in the tables on the following pages.

Table 1: Project Summary for Town of Westport & Westport Public Schools -- Recommended Measures

	Energy Conservation Measures	Total Price	Electric Savings (kWh)	Natural Gas Savings (CCF)	Oil Savings (gal)	First Year Energy Cost Savings	Estimated Incentive	Net Payback
1	Lighting Improvements & Controls	$3,921,716	2,202,473	(6,750)	(64)	$314,420	$660,741	8.3 Yrs
2	Energy Management System Upgrades	$2,105,068	712,567	95,540	0	$224,777	$452,805	7.4 Yrs
3	Weatherization & Insulation	$178,880	11,063	8,820	329	$13,924	$33,789	10.4 Yrs
4	Pipe Insulation	$77,629	0	4,370	0	$5,614	$14,228	10.2 Yrs
5	Automated Swimming Pool Cover	$103,218	60,993	11,460	0	$22,233	$36,213	3.0 Yrs
6	Plug Load Controls	$156,650	171,733	0	0	$25,123	$40,888	4.6 Yrs
7	High-Efficiency Transformers	$585,507	362,359	0	0	$51,384	$108,709	9.3 Yrs
8	Energy Conservation Through Behavior Change®	$37,531	-	-	-	-	-	-
9	High-Efficiency Motors & Variable Frequency Drives	$328,142	287,803	0	0	$41,472	$80,048	6.0 Yrs
10	Chiller Variable Speed Control, Water Side Economizer, & Tower Refurbishment	$153,308	103,585	630	0	$14,784	$33,281	4.5 Yrs
11	Convert Dining Multi-zone Air Handler to Variable Air Volume	$52,544	30,000	890	0	$5,145	$12,115	7.9 Yrs
12	Replace Steam Traps	$167,305	0	22,520	0	$29,208	$50,967	4.0 Yrs
13	Water Heater Replacement	$19,760	15,264	0	0	$2,400	$4,579	6.3 Yrs
	Totals	$7,887,258	3,957,840	137,480	264	$750,457	$1,528,363	8.5 Yrs

The Total Price for the individual ECMs above does not include the up-front project costs listed below. These costs will be included in the financing and have been included in all financial analysis of the project and represent the total project cost of $8,370,000:

- Owner's representative engineering services (AKF) of $157,000
- Town legal fees for negotiation of the Energy Services Agreement (ESA), estimated at $30,000
- NORESCO audit fee ($91,393) payable upon execution of the ESA
- Capitalized interest cost during construction of $205,000

Table 2: Cash Flow Pro Forma

	Annual Energy Cost Savings[1]	Payments for Financed Equipment[2]	Measurement & Verification Services	Net Annual Benefits[3]	Cumulative Cash Flow
Year 1	$750,000	$650,000	$28,400	$71,600	$71,600
Year 2	$775,000	$670,000	$29,300	$75,700	$147,300
Year 3	$800,000	$690,000	$30,300	$79,700	$227,000
Year 4	$826,000	$720,000	$0	$106,000	$333,000
Year 5	$853,000	$740,000	$0	$113,000	$446,000
Year 6	$881,000	$770,000	$0	$111,000	$557,000
Year 7	$909,000	$790,000	$0	$119,000	$676,000
Year 8	$939,000	$820,000	$0	$119,000	$795,000
Year 9	$969,000	$840,000	$0	$129,000	$924,000
Year 10	$1,001,000	$870,000	$0	$131,000	$1,055,000
Totals	$8,703,000	$7,560,000	$88,000	$1,055,000	

Note 1: Annual energy rate escalation projected at 3.25%.

Note 2: Total estimated amount financed is $6,842,772, which is the project price ($7,887,000) plus capitalized construction interest ($205,000), NORESCO's audit fee ($91,393), Owner's Representative Engineering Services (AKF) fee ($157,000), and estimated Town legal fees ($30,000), Net of $1.5 million estimated utility incentives. Projected interest rate is 2.5%.

Note 3: Cashflow includes projected PURA 1% interest rate buydown on the portion of financing associated with the electric savings for 10 years. The estimated value of the PURA buydown for this package of ECMs is $225,000.

After the completion of the 10-year finance term, the recommended project will continue to generate meaningful annual energy costs savings, without any further finance payments. As a result, the Town could potentially realize an increased net annual benefit of more than $1,000,000 per year.

Selection Criteria for Recommended ECMs

The EPC Committee reviewed 24 specific ECMs in the twelve buildings audited. ECMs were selected for inclusion in this recommendation based on specific economic criteria that produce an economic benefit to the taxpayer. ECMs by building are included in Appendix B. Criteria include:

- **Positive Net Present Value (NPV):** The comprehensive recommended project generates a positive NPV after financing costs within 10 years. Most of the measures have a positive NPV of less than 10 years, and the entire recommended project has an NPV of $911,000 for the projected 10-year contract term.
- **Internal Rate of Return (IRR):** Individual ECMs, and the comprehensive recommended project, show an IRR that materially exceeds the cost of financing. The estimated IRR for the recommended comprehensive project is 5.0%. For this analysis, Westport's cost of financing was estimated at 2.5% less a PURA buydown estimated at $225,000, with the observation that Westport's last bond issue was executed at 2.07%.
- **Payback Period:** Individual ECMs should have a simple payback (excluding financing costs) of less than 15 years, based on the first year savings with no escalation. The comprehensive recommended project has a simple payback of 8.5 years.

- **Complexity and/or Magnitude of Installation:** The EPC committee reviewed the list of prospective ECMs to determine which measures, due to complexity of the installation and the magnitude, should remain in the project and which could be taken on by Town or BOE facility staff. For example, there are over 15,000 lighting fixtures included in the project as well as extensive building energy management system upgrades that require precise installation, programming, and commissioning.
- **Financing Term:** Selecting a package of measures with the payback period of 8.5 years will enable the Town to reduce the term of the financing from 15 to 10 years.
- **Resilience of Savings in Higher and Lower Cost Environments:** A sensitivity analysis was performed on the project's proportional electric and fuel use across a range of price escalation scenarios, to evaluate the potential impact of energy cost fluctuations on the projected savings generated from the recommended project. It was estimated that the energy costs savings would still be sufficient to meet the total debt service payments if there were no escalation in rates over the next 10 years. As illustrated in Appendix C, according to the 2014 Integrated Resources Plan for Connecticut, electric rates are expected to rise continually through year 2024 for each natural gas market scenario. In addition, the U.S. Department of Energy (DOE) Federal Energy Management Program (FEMP) provides the Energy Escalation Rate Calculator (EERC) tool to determine the appropriate escalation rate for the specific recommended electric and fuel saving measures, and calculated the appropriate rate to be 4.64% over a 10-year term. The EPC Committee took a more conservative stance by assuming that there would be a much lower overall inflation rate over the next 10 years than projected by the federal government, resulting in an assumed energy escalation rate of 3.25%.

Table 3: Assumptions Used for Recommended Package

First-year savings based on 3-year average utility rates for each specific facility from 2013-2015
Baseline consumption was normalized using the Typical Meteorological Year (TMY) data from Bridgeport, CT
Construction term of 18 months
Projected utility incentives based on the Project Caps and Incentive Levels for Eversource CT effective 1/2016
Projected annual energy escalation rate of 3.25%
All program costs included in the project financing
Operating lease at 2.5% with stepped payments to match savings for a 10-year term

Key Recommended Energy Conservation Measures

The two largest comprehensive key recommended ECMs are summarized below:

- A carefully considered interior and exterior solid-state LED lighting upgrade that will provide substantial electric energy savings, sustained material cost savings, maintain or improve existing building aesthetics, and provide maintenance staff relief from frequent fluorescent lamp and ballast replacements of more than 15,000 fixtures. The new LED lighting system will free up Town staff to focus on performing high quality, systematic, preventative building maintenance, and will be augmented with lighting control solutions including occupancy sensors and daylight harvesting strategies for increased sustainable savings.
- New energy management system upgrades that will provide substantial fuel energy savings, as well as substantially increased occupant comfort conditions, ease of equipment scheduling, building performance reporting, and improved maintenance and service.

Operations & Maintenance Savings (O&M)

While O&M cost savings are not currently included in the project financial return estimates, a number of the ECMs in the recommended package will reduce the work required by the Town and BOE facility staff. The longer-lasting LED lighting compared to the existing primarily fluorescent lighting will significantly reduce lamp replacement. NORESCO has estimated that the material savings alone is approximately $63,000. In addition, the upgrade of the steam traps will reduce the need for facility staff to replace failed traps, and the energy management system upgrades will enhance the ability of the facility staff to monitor and investigate comfort complaints.

Another benefit is that the equipment selected to be installed on the project will be consistent for all facilities reducing the number of replacement parts that need to be stored, and reducing the need for training on multiple types of equipment.

Environmental Impact of Proposed Energy Conservation Measures

NORESCO is a proud member of the U.S. Green Building Council, Clinton Climate Initiative, and a long-time Energy Star® Business Partner. In addition to the direct positive economic benefit this project will have to the Town, this project will provide significant environmental benefits to the Town and the surrounding community, consistent with the Town's CO_2 reduction policy objectives.

Quantified in the tables below are the greenhouse gas emission reductions that will occur as a result of new higher efficiency equipment replacing the existing old, less efficient systems; as well as new controls that will limit the equipment's use to when only needed by the building occupants.

Table 4: Energy Savings

Energy Source	Units	Value
Electricity	3,957,840	Kilowatt Hours
Natural Gas	137,480	Hundred Cubic Feet
Oil	264	Gallons

Table 5: Annual Emissions Reductions

Emission Type	Reductions
Carbon Dioxide (CO_2)	6,128,755 Lbs per year
Sulfur Oxides (SOx)	1,797 Lbs per year
Nitrogen Oxides (NO_x)	5,926 Lbs per year
Equivalent Acres of Trees Planted	**821 acres**
Equivalent Cars Removed from the Roads	**662 cars**

ECMs Identified During the Development of the IGEA

The following is a brief description of each of the potential improvements identified and evaluated throughout the Town and School facilities.

EPC Committee Recommended ECMs

- **Lighting Improvements & Controls:** Upgrades to the existing lighting with efficient LED source lighting and the installation of occupancy sensors will reduce maintenance and electricity usage while maintaining high-quality illumination.
- **Energy Management System (EMS) Upgrades:** EMS upgrades will allow BOE staff to easily schedule heating and cooling equipment, saving significant electricity and natural gas costs each year. Additionally, many new control points will be added to further expand the functionality of the system.
- **Weatherization & Insulation:** Sealing the building envelope with insulating foam, weather-stripping, and silicone caulk will reduce infiltration of unconditioned air, save energy, and improve occupant comfort.
- **Pipe Insulation:** New heating system insulation in four schools will reduce the amount of heat lost in ventilated mechanical spaces and improve comfort conditions in nearby occupied areas such as classrooms and administrative spaces. Reduced heat losses decrease boiler fuel consumption and utility costs, and insulating hot surfaces provide a safer environment for building staff and occupants.
- **Automated Swimming Pool Cover:** A new pool cover at Staples High School will reduce the humidity in the pool area, improving the space conditions for building occupants.
- **Plug Load Controls:** Energy savings are achieved by automatically turning off plug load equipment when idle, typically during the night and unoccupied periods. In addition to reducing electrical consumption and the associated utility costs, this ECM also extends equipment life.
- **High-Efficiency Transformers:** Replacing the existing transformers with new high-efficiency transformers in three school buildings will step down voltage more efficiently and reduce stand-by losses, resulting in a cooler and quieter operation.
- **Energy Conservation Through Behavior Change®:** This behavior change and education program, which will be implemented at all Westport schools, will focuses on environmental and energy conservation.
- **High-Efficiency Motors & Variable Frequency Drives:** Variable frequency drives (VFDs) will be added to selected fans and/or pumps in conjunction with the EMS upgrades to reduce electricity consumption and extend equipment life.
- **Chiller Variable Speed Control, Water Side Economizer, & Tower Refurbishment:** Improving the chiller system in the J wing basement at Staples High School will reduce the facilities electrical consumption and utility costs while improving reliability and comfort. Upgrading and repairing existing equipment also will provide increased performance with less capital outlay than equipment replacement.
- **Convert Dining Multi-zone Air Handler to Variable Air Volume:** Converting the Staples High School cafeteria multi-zone air handler unit AC 1-2 will increase comfort and reduce energy consumption by optimizing air flow to the space conditioning requirements.
- **Replace Steam Traps:** New steam traps at three schools will help heating system operate effectively and efficiently, improve comfort, and reduce fuel consumption and utility costs. Properly functioning steam traps facilitate effective operation of steam equipment, transfer steam to its point-of-use, and prevent steam losses by returning condensed steam to building boilers for reprocessing.
- **Water Heater Replacement:** Replacing the existing electric hot water heater at the Fire Headquarters with a heat pump water heater will produce hot water more efficiently and have the added bonus of providing cooling to overheated areas in the process.

ECMs Evaluated But Not Included

- **Cooling Tower Replacement:** Replace old cooling towers at several locations with new high-efficiency towers with fan variable frequency drives. Not included due to long simple payback (>50 years).
- **Steam to Hot Water Heating Conversion:** Convert to hot water heating to improve heating system reliability and efficiency, in addition to reduced maintenance and lifecycle costs. Not included due to long simple payback (King's Highway >80 years, Long Lots > 25 years).
- **Walk-in Refrigeration Upgrades:** Install controls and new evaporator fans. Measure can be funded through the Board of Education Cafeteria Fund.
- **New Air Handling Units with Air Conditioning:** Install cooling equipment where none currently exists. Measure is being completed by the Town.
- **New Energy-Efficient Condensing Boilers:** Replace existing boilers beyond their useful life with new high-efficiency condensing boilers. Not included due to long simple payback, all greater than 25 years.
- **HVAC Replacement or Refurbishment:** Replace HVAC equipment in poor condition or beyond its useful life with new equipment. Also repair or refurbish existing HVAC equipment that is still in good condition. Not included due to long simple payback (average over 100 years).
- **Kitchen Hood Controls:** Install variable frequency drives and controls on kitchen hoods to reduce fan energy and the amount of conditioned air exhausted based on cooking activity. Identified as more appropriate to fund through the Board of Education Cafeteria Fund.
- **Fuel Conversion (Oil to Natural Gas):** Add natural gas service to facilities currently using only oil to reduce utility costs. This work is already scheduled for completion by the Town.
- **Geothermal Heat Pump Conversion:** Convert existing water source heat pump systems to geothermal, which use the ground as an efficient source/sink for heat. Not included due to uncertainty associated with the Senior Center enhancement project.
- **New Roofing:** Replace selected roof areas that are nearing their end of life and on BOE capital plan. This is a capital measure that was eliminated after proposal award.
- **Solar Photovoltaic (PV) Systems:** Install roof-mounted PV systems on buildings. This measure was eliminated after proposal award due to lack of compatible roofs and locations.
- **Pipe Insulation at Town Buildings:** The scope of the measure at this building was small enough that the Town facility staff could complete during slow periods.
- **Lighting at Town Hall:** The Town has already started the replacement of lighting fixtures to LED, which reduced the savings potential to the point the simple payback was approximately 20 years. The remaining scope off this measure is small enough that the Town facility staff can complete.

Table 6: Financial Comparison of Energy Conservation Measures

	All $ Values in (000's)	All ECMs	EPC Committee Recommended Measure Package
A	Contract Term	15 years	10 years
B	**Project Price**	**$16,211**	**$7,887**
C	Audit Fee ($0.07/sf)	$91	$91
D	Town & BOE Legal Expense	$30	$30
E	AKF Engineering Services Fee	$157	$157
F	Capitalized Construction Interest (1)	$460	$205
G	**Total Project Cost (2)**	**$16,949**	**$8,370**
H	Estimated Energy Incentives (3)	$1,798	$1,528
I	**Net Amount Financed (4)**	**$15,151**	**$6,842**
J	First Year Est. Energy Cost Savings (5)	$970	$750
K	Total Cumulative Net Savings	$277	$1,055
L	Average Annual Savings (6)	$1,225	$870
M	Average Lease Payment (7)	$1,199	$756
N	Average Annual Net Savings	$18	$105
O	Net Simple Payback (8)	14.9	8.5
P	PV Net Cash Flow	$239	$911
Q	Internal Rate of Return [IRR] (9)	2.7%	5.0%
R	CO_2 Reduction (million lbs)	8.35	6.13

Notes:

(1) Construction interest included in financed amount

(2) Total project cost equals the sum of Lines B through F

(3) Eversource provides higher custom incentives for comprehensive projects

(4) Net amount to be financed equals Line G minus Line H

(5) Estimated first year savings based on 3-year average rates from 2013 to 2015

(6) Projected annual energy escalation rate of 3.25%

(7) Operating lease at 2.5% with stepped payments to match savings

(8) Net Simple Payback = (Total Project Cost – Incentives) / First Year Savings

(9) IRR is based on direct purchase at Total Project Cost, less incentives -- IRR is the interest rate at which the net present value of all the cash flows from a project or investment equal zero; it is used to evaluate the attractiveness of a project.

Next Steps

Procurement

NORESCO will develop specific detailed scopes of work and bid packages to obtain firm subcontractor pricing at the applicable prevailing wage rate. For the larger measures, NORESCO plans to send bid packages to a minimum of 3 to 5 potential subcontractors that have been prequalified by NORESCO. NORESCO has requested any lists of applicable subcontractors that the Town may have and wish to include in the prequalification and bid process for this project. The Town will have the opportunity to review the potential subcontractor list prior to issuance of bid packages. After NORESCO has received, reviewed, and leveled all bid pricing, NORESCO will prepare a cost matrix and review the results with the Town. The cost matrix will indicate the recommended subcontractor. Because the final price of the project is based on the subcontractor cost multiplied by our mark-up, the Town, Board of Finance, and any other Town department will be able to see the subcontractor costs being carried for the project.

Open-Book Pricing

NORESCO regularly implements contracts on an open-book, fixed-price basis. More than 80% of NORESCO's performance contracting business is implemented in an open-book approach, including the majority of our municipal projects, and all of our federal government performance contracts since 1984.

Under this process, NORESCO will provide complete pricing transparency during the IGEA, including material and contractor quotes, internal costs, overhead, and profit. Once the project is signed, NORESCO still provides a fixed-price cost and the same performance guarantees as a normal performance contract, so the customer still retains the benefits of a single-source solution.

Request for Information (RFI) for Financing

NORESCO cannot, and will not, act as a Municipal Advisor on this project, as that term is defined in the Dodd-Frank Act and the regulations promulgated thereunder. NORESCO will perform construction project management and engineering services for the Town on the proposed Energy Performance Contract. As part of those services, NORESCO can transmit a request for information (RFI) to financial institutions selected by the Town, collect the responses, and transmit the responses back to the Town only. NORESCO will not provide the Town with any advice with respect to the municipal financial products or the issuance of municipal securities including advice with respect to the structure, timing, terms, and other similar matters concerning such financial products or services.

Finalize Investment Grade Energy Audit (IGEA) Report

The final IGEA report will include the following:

- Facility Profile, Including Baseline Energy Use, Energy and Water Costs, and Description of Buildings
- Savings Opportunities Summary, Including a Summary of all ECMs with Savings Calculations
- Financial Summary, Including Cash Flow Analysis
- Measurement & Verification Plan

NORESCO Compensation

NORESCO has not been paid for any of its work to date. Per our Audit Agreement with the Town, NORESCO will only be paid the audit fee if an Energy Services Agreement (ESA) is executed. If the Town decides not to execute an ESA, then NORESCO will not receive any compensation for its work, and NORESCO will retain ownership of its work product.

NORESCO's compensation if an ESA is executed, in addition to the audit fee, will include NORESCO's fees for services (i.e., design, project management, commissioning, training), and mark-ups for overhead and profit. NORESCO's fees and mark-ups were submitted with our response to the RFP.

Execute Energy Services Agreement (ESA)

The Town is in the process of securing the services of an outside legal firm with experience on Energy Services Agreements. This agreement will incorporate all of the Terms & Conditions for the construction of the project, including the detailed scopes of work for the recommended ECMs, the Guaranteed Cost Savings, the Measurement & Verification (M&V) Plan, and the roles and responsibilities for NORESCO and the Town.

Guaranteed Cost Savings

The ESA will contain the guarantee language confirming that savings will meet or exceed all project-related costs within the term of the contract. NORESCO will conduct annual performance inspections and review findings with the Town to confirm the guarantee has been met, while noting any deficiencies in project performance. If there is a shortfall, NORESCO will write a check to the Town in the amount of the shortfall. All savings in excess of the guarantee each year belong to the Town; we do not carry over excess savings from one year to the next. This ensures that the cost of debt service and ongoing services are fully paid for from the savings in each year of the contract.

Our guarantee is backed by a 30-year reputation for long-term performance. Our guarantee is also backed by a sound, financially strong company that provides the optimum level of confidence to enter into a long-term performance contracting partnership. In addition, NORESCO is backed by our Fortune Top 50 parent company, UTC, with superior financial strength and credit.

NORESCO

APPENDIX A:

EntelliChoice® SUMMARY OF ALL ECMs INVESTIGATED

NORESCO
United Technologies

by NORESCO

Recommended ECM

Not Recommended

Installation Price

		Staples High School	Coleytown Elementary	Town Hall	Bedford Middle School	Coleytown Middle School	Green Farms Elementary	King's Hwy Elementary	Long Lots Elementary	Saugatuck Elementary	Fire Headquarters	Police Dept./ EMS	Senior Center	
1	Lighting Improvements & Controls	$1,234,034	$279,255	$157,006	$510,383	$456,114	$265,068	$181,952	$397,662	$391,127	$57,802	$105,784	$48,535	$4,078,722
2	New Energy Efficient Condensing Boilers	$1,351,128		$435,552				$396,641	$528,854			$596,962		$3,309,137
3	Packaged AC Units		$81,512											$81,512
4	Energy Management System Upgrades	$552,633	$316,000		$109,176	$400,066	$195,557	$96,579	$260,096	$117,574		$100,778	$57,387	$2,205,846
5	Weatherization & Insulation	$55,586	$29,009	$13,174	$7,332	$7,732	$7,346	$10,295	$21,107	$22,086	$5,253			$178,880
6	Pipe Insulation	$35,964	$22,250	$39,738				$5,635	$13,780			$6,019		$123,386
7	Automated Swimming Pool Covers	$103,218												$103,218
8	Plug Load Controls	$42,630	$13,027	$7,186	$30,415	$13,284	$14,134	$10,419	$12,757	$12,222			$576	$156,650
9	Walk-In Cooler Controls	$28,834			$16,162	$19,069	$18,114		$17,554	$18,114			$8,892	$126,739
10	Kitchen Hood Controls	$209,131			$49,401	$49,401				$57,635				$365,568
11	High Efficiency Transformers	$307,009			$237,742				$40,756					$585,507
12	Energy Conservation Through Behavior Change	$4,691	$4,691		$4,691	$4,691	$4,691	$4,691	$4,691	$4,691				$37,530
13	High Efficiency Motors and Variable Frequency Drives	$87,604		$4,318	$72,712	$75,559	$37,420	$10,951	$39,578					$328,142
14	Air Handling Unit Refurbishment	$67,557												$67,557
15	Chiller Variable Speed Control, Water Side Economizer, and Tower Refurbishment	$153,308												$153,308
16	Convert Dining Multizone Air Handler to Variable Air Volume	$52,544												$52,544
17	New Pool Air Handling Unit	$463,958												$463,958
18	Water Heater Replacement										$19,760			$19,760
19	HVAC Replacement											$948,499		$948,499
20	Geothermal Heat Pump Conversion												$280,000	$280,000
21	Steam to Hot Water Heating Conversion							$918,694	$758,066					$1,676,760
22	Cooling Tower Replacement					$185,583	$250,463							$436,046
23	Staples HS Boiler Replacement B HW Boiler	$359,804												$359,804
24	Steam Trap Replacement		$72,455					$47,425	$47,425					$167,305

NORESCO
United Technologies

by NORESCO

Recommended ECM

Not Recommended

Projected First Year Savings

		Staples High School	Coleytown Elementary	Town Hall	Bedford Middle School	Coleytown Middle School	Green Farms Elementary	King's Hwy Elementary	Long Lots Elementary	Saugatuck Elementary	Fire Headquarters	Police Dept / EMS	Senior Center	
1	Lighting Improvements & Controls	$92,998	$21,274	$7,301	$39,335	$33,305	$24,195	$15,352	$33,758	$35,491	$5,922	$7,546	$5,244	$321,721
2	New Energy Efficient Condensing Boilers	$50,894		$10,930				$5,200	$13,100			$18,100		$98,224
3	Packaged AC Units		$1,154											$1,154
4	Energy Management System Upgrades	$115,234	$17,906		$11,969	$13,484	$11,918	$14,263	$15,513	$16,694		$6,493	$7,798	$231,272
5	Weatherization & Insulation	$3,735	$2,530	$672	$426	$547	$475	$1,564	$1,501	$2,145	$329			$13,924
6	Pipe Insulation	$2,123	$1,699	$943				$304	$1,488			$116		$6,673
7	Automated Swimming Pool Covers	$22,234												$22,234
8	Plug Load Controls	$9,393	$3,259	$2,887	$3,462	$1,383	$953	$1,362	$1,293	$986			$145	$25,123
9	Walk-In Cooler Controls	$1,835			$762	$1,504	$905		$821	$828			$410	$7,065
10	Kitchen Hood Controls	$10,724			$2,342	$1,584				$3,710				$18,360
11	High Efficiency Transformers	$28,174			$20,168				$3,042					$51,384
12	Energy Conservation Through Behavior Change	-	-	-	-	-	-	-	-	-	-	-	-	-
13	High Efficiency Motors and Variable Frequency Drives	$16,698		$825	$6,151	$9,353	$1,719	$635	$6,091					$41,472
14	Air Handling Unit Refurbishment	$4,503												$4,503
15	Chiller Variable Speed Control, Water Side Economizer, and Tower Refurbishment	$14,784												$14,784
16	Convert Dining Multizone Air Handler to Variable Air Volume	$5,115												$5,115
17	New Pool Air Handling Unit	$11,068												$11,068
18	Water Heater Replacement										$2,400			$2,400
19	HVAC Replacement											$3,895		$3,895
20	Geothermal Heat Pump Conversion												$19,600	$19,600
21	Steam to Hot Water Heating Conversion							$11,300	$28,800					$40,100
22	Cooling Tower Replacement					$3,700	$4,900							$8,600
23	Staples HS Boiler Replacement B HW Boiler	$14,054												$14,054
24	Steam Trap Replacement		$7,301					$8,158	$13,749					$29,208

NORESCO
United Technologies

by NORESCO

Recommended ECM

Not Recommended

Simple Payback

		Staples High School	Coleytown Elementary	Town Hall	Bedford Middle School	Coleytown Middle School	Green Farms Elementary	King's Hwy Elementary	Long Lots Elementary	Saugatuck Elementary	Fire Headquarters	Police Dept. / EMS	Senior Center	
1	Lighting Improvements & Controls	11.0	10.9	19.5	10.9	11.6	8.9	10.0	9.8	8.9	7.8	12.0	7.5	10.6
2	New Energy Efficient Condensing Boilers	25.1		38.5				75.0	39.4			32.8		32.6
3	Packaged AC Units		68.7											68.7
4	Energy Management System Upgrades	3.1	15.3		6.8	27.3	14.2	4.4	14.1	4.7		14.8	5.1	7.6
5	Weatherization & Insulation	12.1	9.1	19.2	14.8	11.5	13.1	4.3	11.4	7.9	13.7			10.4
6	Pipe Insulation	14.1	10.7	42.1				15.9	7.1			51.9		16.4
7	Automated Swimming Pool Covers	3.0												3.0
8	Plug Load Controls	2.9	2.6	1.6	6.8	7.6	12.8	5.8	8.0	10.4			2.6	4.6
9	Walk-In Cooler Controls	13.5			19.2	10.6	18.0		19.5	19.9			20.0	15.9
10	Kitchen Hood Controls	17.0			18.9	28.8				13.3				17.5
11	High Efficiency Transformers	8.7			9.8				11.5					9.3
12	Energy Conservation Through Behavior Change	—	—		—	—	—	—	—	—				—
13	High Efficiency Motors and Variable Frequency Drives	3.4		3.3	9.8	6.0	19.7	15.4	4.6					6.0
14	Air Handling Unit Refurbishment	12.9												12.9
15	Chiller Variable Speed Control, Water Side Economizer, and Tower Refurbishment	8.1												8.1
16	Convert Dining Multizone Air Handler to Variable Air Volume	7.9												7.9
17	New Pool Air Handling Unit	40.9												40.9
18	Water Heater Replacement										6.3			6.3
19	HVAC Replacement											243.5		243.5
20	Geothermal Heat Pump Conversion												13.3	13.3
21	Steam to Hot Water Heating Conversion							80.0	25.4					40.8
22	Cooling Tower Replacement					49.1	50.1							49.7
23	Staples HS Boiler Replacement B HW Boiler	24.0												24.0
24	Steam Trap Replacement		9.9					5.8	3.4					4.0

NORESCO

APPENDIX B:
BUILDING-BY-BUILDING BREAKDOWN

NORESCO
United Technologies

STAPLES HIGH SCHOOL

Project Overview

NORESCO's project at Staples High School will reduce the humidity levels in the pool, significantly improve the efficiency of the chilled water system with new variable speed control and a new water side economizer, and improve access of the buildings energy management system. The staff and students at the school will also learn about energy efficiency and the Town's efforts to reduce their utility costs through this project from our Green Operations team.

70 North Avenue
Westport, CT 06880
Built: 1973 · Area: 461,382 SF
Uses: Education, High School

Recommended ECMs

Savings: $310,488
Net Payback: 6.5 years
Price: $2,629,222

Lighting Improvements & Controls	High-Efficiency Transformers
Energy Management System Upgrades	Energy Conservation Through Behavior Change®
Weatherization & Insulation	High-Efficiency Motors & Variable Frequency Drives
Chiller Variable Speed Control, Water Side Economizer, & Tower Refurbishment	Convert Dining Multi-zone Air Handling Unit to Variable Air Volume
Pipe Insulation	Automated Swimming Pool Cover
Plug Load Controls	

All Identified ECMs

Savings: $403,566
Net Payback: 10.8 years
Price: $5,109,633

All Recommended ECMs as shown above.
ECMs below that are not recommended at this time:

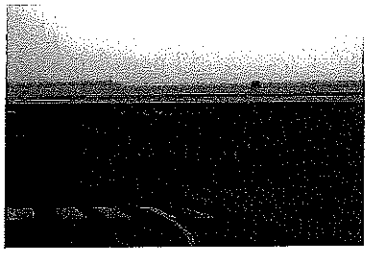
Walk-in Cooler Controls	New Pool Air Handling Unit
Kitchen Hood Controls	New Hot Water Boiler
Air Handling Unit Refurbishment	New Energy-Efficient Condensing Boilers

NORESCO
United Technologies

BEDFORD MIDDLE SCHOOL

Project Overview

NORESCO's project at Bedford Middle School will expand the use of variable frequency drives to reduce fan energy use, update inefficient low voltage step down transformers, and improve overall lighting system efficiency. The staff and students at the school will also learn about energy efficiency and the Town's efforts to reduce their utility costs through this project from our Green Operations team.



88 North Avenue
Westport, CT 06880
Built: 2001 · Area: 187,500 SF
Uses: Education, Middle School

Recommended ECMs

Savings: $81,511
Net Payback: 9.8 years
Price: $972,451

Lighting Improvements & Controls	High-Efficiency Transformers
Energy Management System Upgrades	Energy Conservation Through Behavior Change®
Weatherization & Insulation	High-Efficiency Motors & Variable Frequency Drives
Plug Load Controls	

All Identified ECMs

Savings: $84,615
Net Payback: 10.2 years
Price: $1,038,014

All Recommended ECMs as shown above.
ECMs below that are not recommended at this time:

Kitchen Hood Controls	Walk-In Cooler Controls

COLEYTOWN MIDDLE SCHOOL

Project Overview

NORESCO's project at Coleytown Middle School will expand the use of variable frequency drives to reduce fan energy use, upgrade old EMS components, and improve overall lighting system efficiency. The staff and students at the school will also learn about energy efficiency and the Town's efforts to reduce their utility costs through this project from our Green Operations team.

255 North Avenue
Westport, CT 06880
Built: 1964 · Area: 128,858 SF
Uses: Education, Middle School

Recommended ECMs

Savings: $58,072
Net Payback: 14.3 years
Price: $957,446

Lighting Improvements & Controls	Plug Load Controls
Energy Management System Upgrades	Energy Conservation Through Behavior Change®
Weatherization & Insulation	High-Efficiency Motors & Variable Frequency Drives

All Identified ECMs

Savings: $64,860
Net Payback: 16.6 years
Price: $1,211,499

All Recommended ECMs as shown above.
ECMs below that are not recommended at this time:

Walk-In Cooler Controls	Kitchen Hood Controls
Cooling Tower Replacement	

COLEYTOWN ELEMENTARY SCHOOL

Project Overview

NORESCO's project at Coleytown Elementary School will improve the temperature control of the classrooms while reducing the ongoing maintenance required by the old steam heating system. The staff and students at the school will learn about energy efficiency and the Town's efforts to reduce their utility costs through this project from our Green Operations team.

65 Easton Road
Westport, CT 06880
Built: 1957 · Area: 73,594 SF
Uses: Education, Elementary School

Recommended ECMs

Savings: $53,969
Net Payback: 11.7 years
Price: $730,687

Lighting Improvements & Controls	Plug Load Controls
Energy Management System Upgrades	Energy Conservation Through Behavior Change®
Weatherization & Insulation	Steam Trap Replacement
Pipe Insulation	

All Identified ECMs

Savings: $55,123
Net Payback: 12.9 years
Price: $812,199

All Recommended ECMs as shown above.
ECMs below that are not recommended at this time:

Packaged Air Conditioning Units

GREENS FARMS ELEMENTARY SCHOOL

17 Morningside Drive South
Westport, CT 06880
Built: 1930 · Area: 97,746 SF
Uses: Education, Elementary School

Project Overview

NORESCO's project at Greens Farms Elementary School will expand the use of variable frequency drives to reduce fan energy use, upgrade old EMS components, and improve overall lighting system efficiency.

Recommended ECMs

Savings: $39,260
Net Payback: 11.2 years
Price: $524,216

Lighting Improvements & Controls	Plug Load Controls
Energy Management System Upgrades	Energy Conservation Through Behavior Change®
Weatherization & Insulation	High-Efficiency Motors & Variable Frequency Drives

All Identified ECMs

Savings: $45,065
Net Payback: 15.7 years
Price: $792,793

All Recommended ECMs as shown above.
ECMs below that are not recommended at this time:

Walk-In Cooler Controls	Cooling Tower Replacement

NORESCO
A United Technologies

KING'S HIGHWAY ELEMENTARY SCHOOL

Project Overview

NORESCO's project at King's Highway Elementary School will improve the temperature control of the library while reducing the ongoing maintenance required by the old steam heating system. The staff and students at the school will learn about energy efficiency and the Town's efforts to reduce their utility costs through this project from our Green Operations team.

125 Post Road West
Westport, CT 06880
Built: 1966 · Area: 74,562 SF
Uses: Education, Elementary School

Recommended ECMs

Savings: $41,638
Net Payback: 7.1 years
Price: $367,907

Lighting Improvements & Controls	Plug Load Controls
Energy Management System Upgrades	Energy Conservation Through Behavior Change®
Weatherization & Insulation	High-Efficiency Motors & Variable Frequency Drives
Pipe Insulation	Steam Trap Replacement

All Identified ECMs

Savings: $49,980
Net Payback: 30.9 years
Price: $1,635,817

All Recommended ECMs as shown above.
ECMs below that are not recommended at this time:

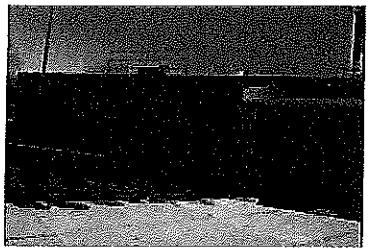
New Energy-Efficient Condensing Boilers	Steam to Hot Water Conversion

NORESCO
A United Technologies

LONG LOTS ELEMENTARY SCHOOL

Project Overview

NORESCO's project at Long Lots Elementary School will expand the use of variable frequency drives to reduce fan energy use, update inefficient low voltage step down transformers, and improve overall lighting system efficiency. The staff and students at the school will also learn about energy efficiency and the Town's efforts to reduce their utility costs through this project from our Green Operations team.



13 Hyde Lane
Westport, CT 06880
Built: 1953 · Area: 108,881 SF
Uses: Education, Elementary School

Recommended ECMs

Savings: $76,435
Net Payback: 9.2 years
Price: $837,852

Lighting Improvements & Controls	High-Efficiency Transformers
Energy Management System Upgrades	Energy Conservation Through Behavior Change®
Weatherization & Insulation	High-Efficiency Motors & Variable Frequency Drives
Pipe Insulation	Steam Trap Replacement
Plug Load Controls	

All Identified ECMs

Savings: $105,407
Net Payback: 18.2 years
Price: $2,094,901

All Recommended ECMs as shown above.
ECMs below that are not recommended at this time:

Steam to Hot Water Heating Conversion	New Energy-Efficient Condensing Boilers
Walk-in Cooler Controls	

SAUGATUCK ELEMENTARY SCHOOL

170 Riverside Avenue
Westport, CT 06880
Built: 1937 · Area: 91,236 SF
Uses: Education, Elementary School

Project Overview

NORESCO's project at Saugatuck Elementary School will improve the temperature control of the classrooms and improve overall lighting system efficiency. The staff and students at the school will learn about energy efficiency and the Town's efforts to reduce their utility costs through this project from our Green Operations team.

Recommended ECMs

Savings: $55,316
Net Payback: 7.7 years
Price: $547,700

Lighting Improvements & Controls	Plug Load Controls
Energy Management System Upgrades	Energy Conservation Through Behavior Change®
Weatherization & Insulation	

All Identified ECMs

Savings: $59,854
Net Payback: 8.3 years
Price: $623,449

All Recommended ECMs as shown above.
ECMs below that are not recommended at this time:

Walk-in Cooler Controls	Kitchen Hood Controls

FIRE HEADQUARTERS

515 Post Road East
Westport, CT 06880
Built: 1982 · Area: 18,274 SF
Use: Fire Station

Project Overview

NORESCO's project at the Fire Headquarters will improve overall lighting system efficiency and replace costly electric hot water heating with a more efficient heat pump.

Recommended ECMs

Savings: $8,651
Net Payback: 7.6 years
Price: $82,815

Lighting Improvements & Controls	Water Heater Replacement
Weatherization & Insulation	

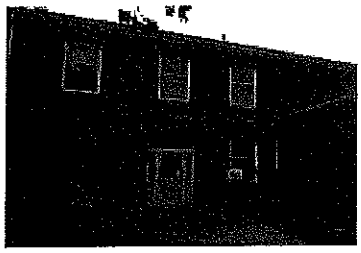
All Identified ECMs

Savings: $8,651
Net Payback: 7.6 years
Price: $82,815

All Recommended ECMs as shown above.

NORESCO

POLICE DEPARTMENT



50 Jesup Road
Westport, CT 06880
Built: 1950s · Area: 20,243 SF
Uses: Police Station, Emergency Services

Project Overview

NORESCO's project at the Police Department will improve overall lighting system efficiency.

Recommended ECMs

Savings: $7,546
Net Payback: 12.0 years
Price: $105,784

Lighting Improvements & Controls

All Identified ECMs

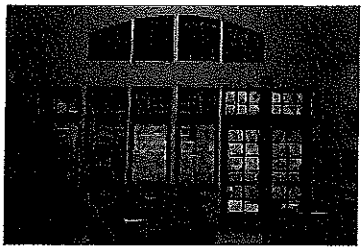
Savings: $36,150
Net Payback: 48.0 years
Price: $1,758,042

All Recommended ECMs as shown above.
ECMs below that are not recommended at this time:

New Energy-Efficient Condensing Boilers	Energy Management System Upgrades
Pipe Insulation	HVAC Replacement

NORESCO
Ballard Technologies

SENIOR CENTER



21 Imperial Road
Westport, CT 06880
Built: 2003 · Area: 10,989 SF
Use: Senior Center

Project Overview

NORESCO's project at the Senior Center will upgrade EMS components and improve overall lighting system efficiency.

Recommended ECMs

Savings: $13,187
Net Payback: 6.0 years
Price: $106,498

Lighting Improvements & Controls	Plug Load Controls
Energy Management System Upgrades	

All Identified ECMs

Savings: $33,197
Net Payback: 10.5 years
Price: $395,390

All Recommended ECMs as shown above.
ECMs below that are not recommended at this time:

Walk-in Cooler Controls	Geothermal Heat Pump Conversion

TOWN HALL

110 Myrtle Avenue
Westport, CT 06880
Built: 1930 · Area: 32,628 SF
Use: Administrative

Project Overview

NORESCO's project at the Town Hall will reduce the building heating and cooling loads and the amount of energy used to circulate hot water throughout the building.

Recommended ECMs

Savings: $4,384
Net Payback: 4.6 years
Price: $24,678

Weatherization & Insulation	High-Efficiency Motors & Variable Frequency Drives
Plug Load Controls	

All Identified ECMs

Savings: $23,558
Net Payback: 26.4 years
Price: $656,974

All Recommended ECMs as shown above.
ECMs below that are not recommended at this time:

Lighting Improvements & Controls	New Energy-Efficient Condensing Boilers
Pipe Insulation	

NORESCO
United Technologies

APPENDIX C:
RATE ESCALATION SCENARIOS

NORESCO

ELECTRIC POWER RATE ESCALATION VERSUS NATURAL GAS MARKET SCENARIOS

2014

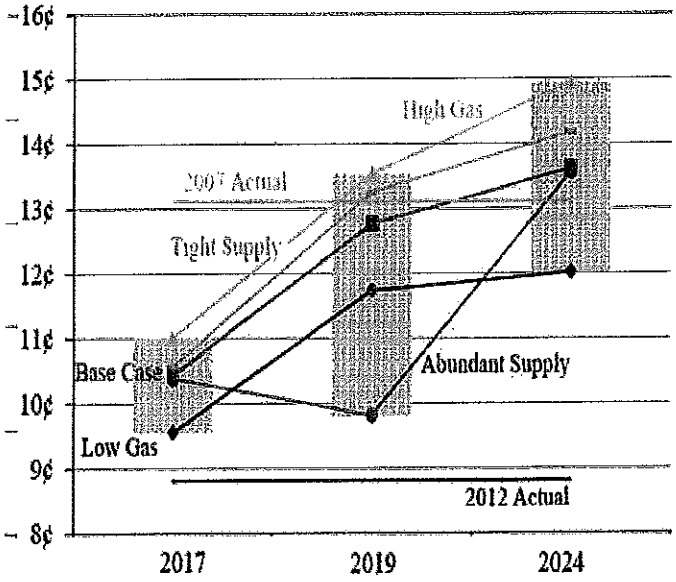
INTEGRATED RESOURCES PLAN FOR CONNECTICUT

PREPARED BY:

THE CONNECTICUT DEPARTMENT OF ENERGY

AND ENVIRONMENTAL PROTECTION

Figure 27[148149]
Connecticut Customers' Power Supply-Related Costs



Electric Power Rate Escalation Versus Natural Gas Market Scenarios

Connecticut Department of Energy & Environmental Protection 2014 Integrated Resource Plan

Connecticut Customers' Power Supply Related Costs

Base Case					
Year	¢/kWh	% Increase 2012-2017	2017-2019	2019-2024	2012-2024
2012	8.80	3.7%			
2017	10.43		7.4%		
2019	12.76			1.3%	
2024	13.61				5.5%

High Gas					
	¢/kWh	% Increase 2012-2017	2017-2019	2019-2024	2012-2024
2012	8.80	5.0%			
2017	11		7.7%		
2019	13.53			2.1%	
2024	14.95				7.0%

Low Gas					
	¢/kWh	% Increase 2012-2017	2017-2019	2019-2024	2012-2024
2012	8.80	1.7%			
2017	9.55		7.6%		
2019	11.73			0.5%	
2024	12.01				3.6%

Abundant Supply					
	¢/kWh	% Increase 2012-2017	2017-2019	2019-2024	2012-2024
2012	8.80	3.6%			
2017	10.37		-1.8%		
2019	9.81			7.6%	
2024	13.56				5.4%

Tight Supply					
	¢/kWh	% Increase 2012-2017	2017-2019	2019-2024	2012-2024
2012	8.80	4.0%			
2017	10.56		8.5%		
2019	13.25			1.4%	
2024	14.18				6.1%

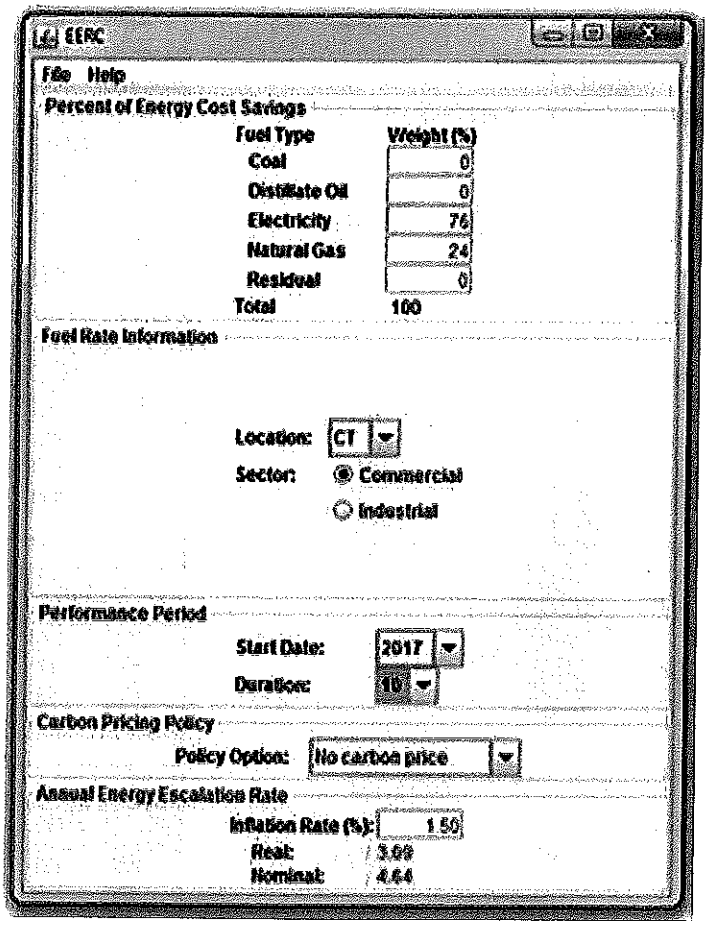
ENERGY ESCALATION PROJECTION

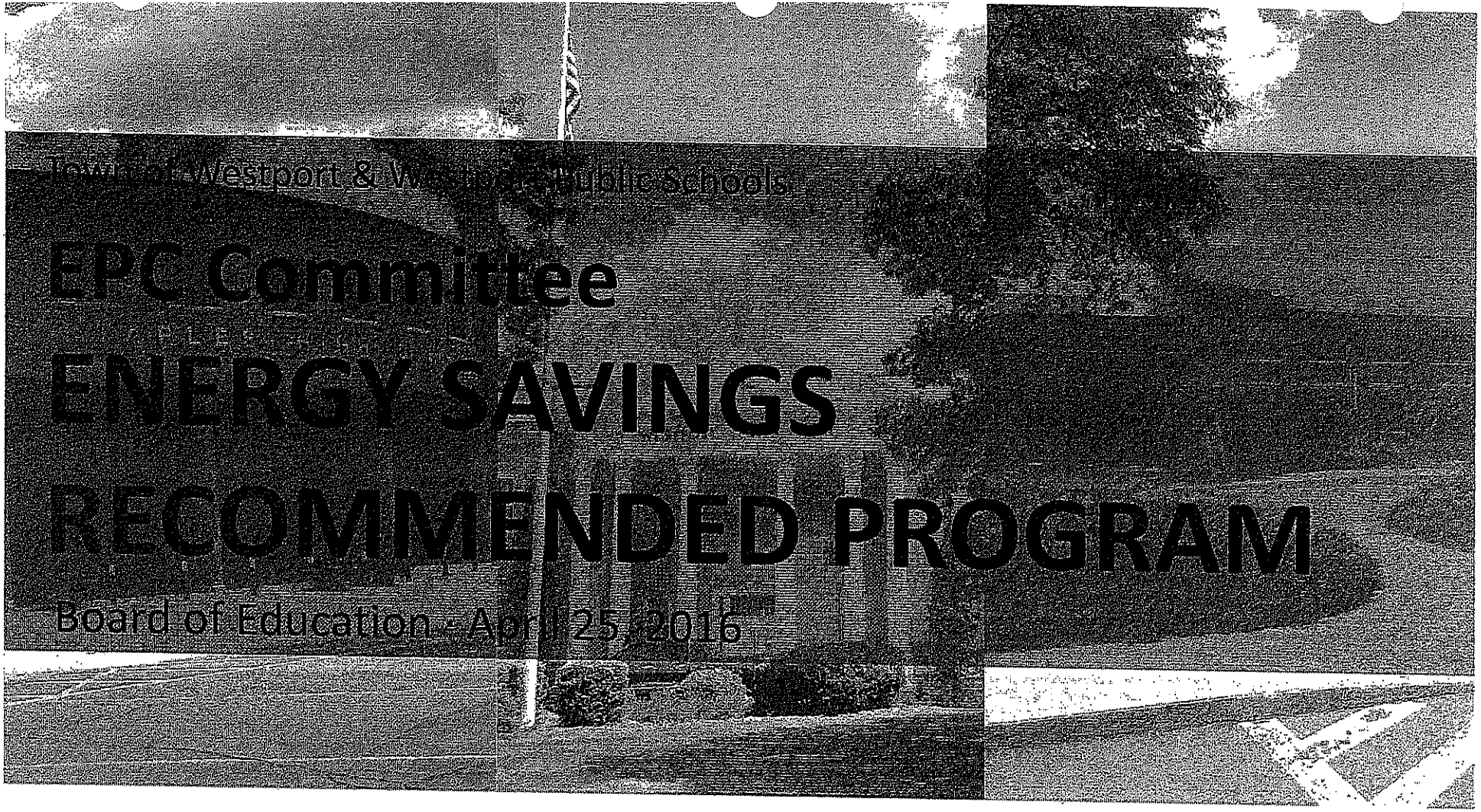
The U.S. Department of Energy (DOE) Federal Energy Management Program (FEMP) recommends use of the Energy Escalation Rate Calculator (EERC) [available at: http://energy.gov/eere/femp/energy-escalation-rate-calculator-download]. The State of Connecticut Department of Administrative Services also references the use of federal government guidelines to determine utility rate escalations in its contract templates.

Uses Annual Energy Price Forecast of the:

- Energy Information Administration (EIA)
- U.S. Department of Energy (DOE)
- National Institute of Standards and Technology (NIST)
- EERC uses a weighted average escalation rate based on the savings for each fuel type

Based on the recommended measure package, using a 1.5% inflation rate, the projected Annual Escalation Rate for the recommended measure package would be 4.64%. We are using a more conservative rate of 3.25%.




Town of Westport & Westport Public Schools
EPC Committee
ENERGY SAVINGS
RECOMMENDED PROGRAM
Board of Education - April 25, 2016

To seek BOE support for the Energy Performance Contracting (EPC) program and its package of energy conservation measures (ECMs).

- The Recommended Project
- What Is in the Project
- Selection Criteria
- EPC Committee Recommended ECMs by Building
- Energy Savings & Emissions Reduction
- Projected Positive Cash Flow
- School Projects Implementation Logistics
- Next Steps

RECOMMENDED TOTAL PROJECT

Total Project Cost in School and Town Buildings
$8.37 million

Amount to Be Financed Net of Utility Incentives
$6.84 million

Energy Cost Savings Over a 10-Year Financing Term
$8.70 million

Net Project Payback
8.5 years

$7.57 Million Investment in School Buildings

THE RECOMMENDED PROJECT IN SCHOOLS

Total Project Cost in School Buildings
$7.57 million

Projected Utility Incentives
$1.46 million

Annual Energy Cost Savings
$716,689

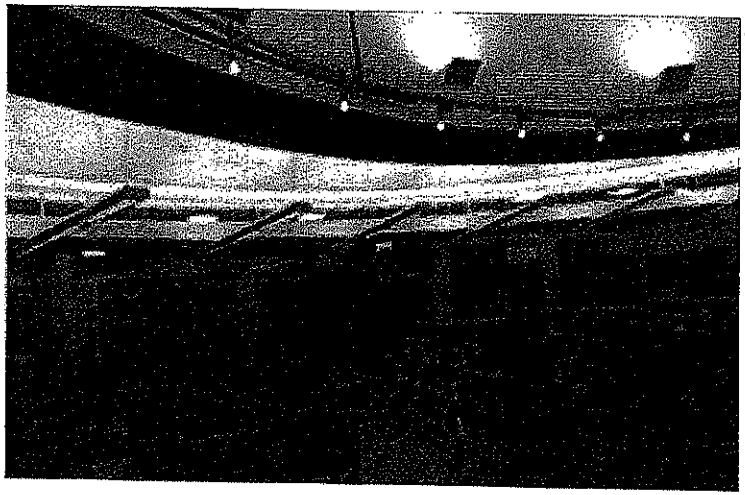
CO_2 Reduction
5,887,000 lbs

WHAT IS IN THE PROJECT

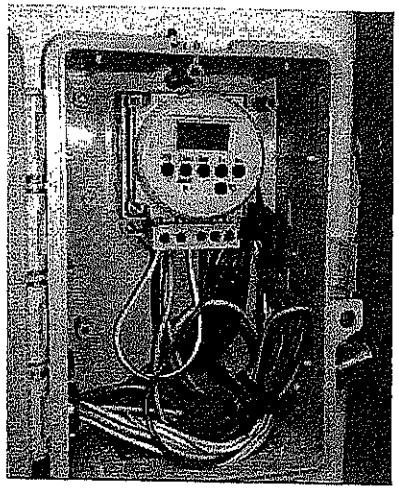
NORESCO has completed Investment Grade Energy Audits (IGEAs) at all 12 School and Town buildings.

24 energy conservation measures (ECMs) were identified for potential inclusion in the Energy Performance Contract (EPC).

NORESCO and the EPC Committee recommend 13 high-value ECMs across the 12 buildings. Highlights include:



Lighting Improvements



Energy Management System Improvements

SELECTION CRITERIA

The EPC Committee's recommended package of measures is based on:

- Positive Net Present Value
- Internal Rate of Return
- Payback Period
- Other Benefits in Addition to Guaranteed Energy Savings
- Complexity and/or Magnitude of Installation
- Financing Term
- Significant Savings Maintained Under All Energy Rate Scenarios

ECMs RECOMMENDED FOR IMPLEMENTATION

Energy Conservation Measures	Staples	Bedford	Coleytown MS	Coleytown ES	Greens Farms	King's Highway	Long Lots	Saugatuck	Fire Headquarters	Police Department	Senior Center	Town Hall
Lighting Improvements & Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Energy Management System Upgrades	✓	✓	✓	✓	✓	✓	✓	✓			✓	
Weatherization & Insulation	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
Pipe Insulation	✓			✓		✓	✓					
Automated Swimming Pool Cover	✓											
Plug Load Controls	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓
High-Efficiency Transformers	✓	✓					✓					
Energy Conservation Through Behavior Change®	✓	✓	✓	✓	✓	✓	✓	✓				
High-Efficiency Motors & Variable Frequency Drives	✓	✓	✓		✓	✓	✓					✓
Chiller Variable Speed Control, Water Side Economizer, & Tower Refurbishment	✓											
Convert Dining Multi-zone Air Handler to VAV	✓											
Replace Steam Traps				✓		✓	✓					
Water Heater Replacement									✓			

RECOMMENDED ECMS, COSTS & SAVINGS

Energy Conservation Measures	Costs	First Year Energy Cost Savings	Estimated Utility Incentive	Net Payback (Years)
Lighting Improvements & Controls	$3,921,716	$314,420	$660,741	8.3
Energy Management System Upgrades	$2,105,068	$224,777	$452,805	7.4
Weatherization & Insulation	$178,880	$13,924	$33,789	10.4
Pipe Insulation	$77,629	$5,614	$14,228	10.2
Automated Swimming Pool Cover	$103,218	$22,233	$36,213	3.0
Plug Load Controls	$156,650	$25,123	$40,888	4.6
High-Efficiency Transformers	$585,507	$51,384	$108,709	9.3
Energy Conservation Through Behavior Change®	$37,531	-	-	-
High-Efficiency Motors & Variable Frequency Drives	$328,142	$41,472	$80,048	6.0
Chiller Variable Speed Control, Water Side Economizer, & Tower Refurbishment	$153,308	$14,784	$33,281	4.5
Convert Dining Multi-zone Air Handler to Variable Air Volume	$52,544	$5,145	$12,115	7.9
Replace Steam Traps	$167,305	$29,208	$50,967	4.0
Water Heater Replacement	$19,760	$2,400	$4,579	6.3
Totals	$7,887,258	$750,457	$1,528,363	8.5 Years

ANNUAL PROJECTED ENERGY SAVINGS & EMISSIONS REDUCTION

Energy Source	Units	Value
Electricity	3,957,840	Kilowatt Hours
Natural Gas	137,480	Hundred Cubic Feet
Oil	264	Gallons

Emission Type	Reductions
Carbon Dioxide (CO_2)	6,128,755 Lbs per year
Sulfur Oxides (SOx)	1,797 Lbs per year
Nitrogen Oxides (NO_x)	5,926 Lbs per year
Equivalent Acres of Trees Planted	**821 acres**
Equivalent Cars Removed from the Roads	**662 cars**

PROJECT IS POSITIVE CASH FLOW

	Annual Energy Cost Savings	Payments for Financed Equipment	Measurement & Verification Services	Net Annual Benefits *	Cumulative Cash Flow
Year 1	$750,000	$650,000	$28,400	$71,600	$71,600
Year 2	$775,000	$670,000	$29,300	$75,700	$147,300
Year 3	$800,000	$690,000	$30,300	$79,700	$227,000
Year 4	$826,000	$720,000	$0	$106,000	$333,000
Year 5	$853,000	$740,000	$0	$113,000	$446,000
Year 6	$881,000	$770,000	$0	$111,000	$557,000
Year 7	$909,000	$790,000	$0	$119,000	$676,000
Year 8	$939,000	$820,000	$0	$119,000	$795,000
Year 9	$969,000	$840,000	$0	$129,000	$924,000
Year 10	$1,001,000	$870,000	$0	$131,000	$1,055,000
Totals	$8,703,000	$7,560,000	$88,000	$1,055,000	

* At the end of the 10-year lease payments, all annual savings (approximately $1 million annually) continue to accrue to the Town.

SCHOOL PROJECTS IMPLEMENTATION LOGISTICS

- **Collaboration from Day One:** Ensuring we identify and fully understand the BOE's priorities, goals, and expectations
- **Communication Plan During Construction:** Communicating with the principal and staff at all times so everyone understands what we are doing and where we will be working
- **Calendar of Events:** Understanding the school calendar, testing schedules, after-school events, and building use for outside groups
- **Special Scheduling Requirements:** Scheduling work for unoccupied or light occupancy periods such as nights, weekends, and school breaks
- **Schedule Flexibility:** Working additional hours, such as using a second shift and completing work during the summer, school breaks, and teacher in-service days

SCHOOL PROJECTS IMPLEMENTATION LOGISTICS

- **Safety and Security Conscious:** Ensuring construction areas are properly marked and restricted to traffic as well as ensuring all workers are properly identified with security background checks and ID badges
- **Sensitivity to Noise Levels:** Ensuring that while working the noise levels are kept low so as not to disrupt or distract the students
- **Off-site Capabilities:** Working with our local contractors to complete as much work off-site as possible
- **Contractor Cleanliness:** Confirming all work areas are immediately cleaned when work is completed and at the end of the day, including tools, dust, and open doors
- **Rigorous Commissioning Plan:** Ensuring equipment installed properly the first time

NEXT STEPS

- NORESCO has submitted scope to Eversource for incentive pre-approval.
- NORESCO is finalizing pricing through subcontractor competitive bidding.
- First Selectman will request a "not to exceed amount" appropriation at BOF May 4 meeting.
- Administration to explore financing options for BOF meeting.
- Complete Energy Services Agreement (contract) terms.
- If appropriation approved by BOF on May 4, final package will go to RTM for approval at June meeting.

WESTPORT PUBLIC SCHOOLS

ELLIOTT LANDON
Superintendent of Schools

110 MYRTLE AVENUE
WESTPORT, CONNECTICUT 06880
TELEPHONE: (203) 341-1010
FAX: (203) 341-1029

TO: Members of the Board of Education

FROM: Elliott Landon, Superintendent of Schools

DATE: April 25, 2016

SUBJECT: Non-Renewal: Non-Tenured Teachers, Long-Term and Permanent Substitute Teachers

It is recommended that the contracts/agreements with the long-term substitutes, permanent building substitutes, and non-tenured teachers listed below and currently employed for the 2015-2016 school year not be renewed for the 2016-17 school year. This recommendation is in accordance with Section 10-151 of the Connecticut Statutes. The listed long-term substitutes, permanent building substitutes, and non-tenured teachers have received written notice of the Board meeting and also will receive, prior to May 1, written notice of the Board of Education's action.

ADMINISTRATIVE RECOMMENDATION:

1. BE IT RESOLVED, That upon the recommendation of the Superintendent of Schools and pursuant to Connecticut General Statutes 10-151, the Westport Board of Education non-renews for the 2016-17 school year the teaching contract(s)/agreements with non-tenured teachers, long-term substitutes and permanent building substitutes employed during the 2015-16 school year, all of whom were identified in executive session on April 25, 2016, said action to be applicable on or before the end of the 2015-2016 school year; and,

2. BE IT FURTHER RESOLVED, That the Superintendent of Schools be directed to communicate this action of the Board in writing to the non-tenured teachers, long-term substitutes and permanent building substitutes identified in executive session on April 25, 2016 and be authorized to respond on behalf of the Board of Education for data which may be forthcoming from them and/or their representatives pursuant to applicable provisions of Connecticut General Statutes 10-151.

INTEROFFICE MEMORANDUM

TO: ELLIOTT LANDON
SUPERINTENDENT

FROM: ELIO LONGO, JR.
DIRECTOR OF SCHOOL BUSINESS OPERATIONS

SUBJECT: CAPITAL PROJECTS BID RESULTS

DATE: APRIL 14, 2016

The three capital projects listed below were recently bid using a Request for Proposal process. I am requesting Board approval to forward all three projects to the Board of Finance as a capital appropriation request in the total amount of $1,453,184. *Projects may also be considered individually.*

Coleytown Elementary School

Replace pitched asphalt 3-tab shingle roof (1986)
(30 year roof end of life)

5-Year Proposed Capital Forecast: FY16-17 Priority 1
Estimate: $165,000

Bid results:

Shoreline Restoration LLC	**$136,544**
WPI Inc., Webster, MA	$127,000
JJS Universal Construction Co., Dudley, MA.	$100,000

Recommendation: Award to Shoreline Restoration LLC. Shoreline is a Manufacturer's Certified Representative (MCR), which meets the bid requirements. MCR's offer manufacturer warranties and guarantees on materials and installation. They are a local vendor and can respond in a timely manner to any issues or items that may come up with the roof.

Coleytown Elementary School

Replace classroom casework

5-Year Proposed Capital Forecast: FY16-17 Priority 3
Estimate: $200,000

Bid results:

John L. Simpson	**$115,000**
The Nasi Group	$152,000
Cross River Cabinetry	$169,462
Lanese Construction	$192,073
Stewart Mechanical	$208,400
Eagle Ridge	$349,300

Recommendation: Award to John L. Simpson.

Staples High School

Upgrade Boys Gym Locker Room area (lockers, flooring, ceiling tiles and showers)
Upgrade Pool General Area and Bleachers (flooring, trim, paint, seating and glass wall)
Upgrade Boys and Girls Pool Locker Room Area (lockers, flooring, showers and fixtures)

5-Year Proposed Capital Forecast: FY16-17 Priority 2
Estimate: $1,515,000

Bid results:

Eagle Ridge Construction	**$1,201,640**
Lanese Construction	$1,370,443

Recommendation: Award to Eagle Ridge Construction.

Julie Droller
Director, Elementary Education
jdroller@westport.k12.ct.us

James D'Amico
Director, Secondary Education
jdamico@westport.k12.ct.us

TO: ELLIOTT LANDON

FROM: JAMES D'AMICO AND JULIE DROLLER

SUBJECT: WESTPORT 2025 5TH DOMAIN

DATE: APRIL 25, 2016

Westport 2025, a district wide curriculum initiative launched in 2010, continues to be the lens through which we develop, evaluate and refine our curriculum, instruction, and assessment practices to assure that we are developing students' critical-thinking, creative, communication and problem-solving skills.

A few years after the W2025 Task Force was underway and we reflected on our progress and simultaneously preparing for our NEASC Accreditation at SHS, we determined that the lens did not fully capture the social, civic and ethical outcomes that we deemed essential for our students. We identified the need for a "5th Domain" to the W2025 Lens that addressed these capacities.

In the fall of 2014, Dr. Landon hosted breakfast presentations in each school where he introduced the 5th Domain initiative. We invited teachers to join us to research and consider how Westport and other lighthouse districts around the world address these social, civic and ethical capacities to fully prepare students for global citizenship. As part of our research, teachers went on site visits to Riverdale Country Day and Horace Mann schools and attended the Character Lab Research Institute. Later that year, administrators facilitated a Community Conversation, to provide an overview of the purpose and goals of the 5th Domain, and solicit input from parents and community members to help inform our efforts.

This past June 2015, Principals and Central Office Administrators gathered for a summer retreat to reflect and plan for the coming school year. We worked with a Leadership Consultant who challenged us to begin to shape a clearly articulated vision to inform all of our work - something that would reflect our core beliefs and the characteristics we strive for in our students.

We began by generating a list of desired student outcomes, considered the conditions that would lead to these goals, and brainstormed an area of growth. We then drafted school-based Theories of Action - If... Then... statements of improvement strategies and anticipated results - to focus our improvement efforts. This work was replicated with the full Westport administrative team in August 2015 to expand our thinking and revise our Theories of Action. Questions about desired student outcomes and core values were posed to all staff members at each school during the

opening Faculty Meetings. Administrators asked staff to identify the type of environment and instructional practices that would foster these outcomes. These brainstorming sessions resulted in further refinement of each school's Theory of Action, which provided a focus for their Whole School Learning Goal* for the year.

Throughout the fall, The 5th Domain Committee sorted, categorized, and analyzed various lists of values and beliefs generated from the Community Conversation, the administrators, the faculties at each school, and our research. We pulled together a Steering Committee to identify the words and phrases that captured the best thinking about our core values and create a clear and succinct statement that represented Westport's Guiding Principles. Our goal was to create a framework that would resonate with all stakeholders and provide a foundation for all of our work as a district.

In December 2015, we presented an overview of our 5th Domain work and ultimate goals with our Tri-State Consortium Assistant Superintendent's Study Group, to gather feedback and suggestions from this group of colleagues. They cited our collaborative and iterative process as a strength, and offered some ideas about how we might want to proceed. We reflected on their feedback and determined that a critical next step for us was to make this work tangible and explicit by naming what it looks like and sounds like - for students in grades K through 12, as well as for the adults in our learning community - to assure a shared understanding.

We realized that in order to benchmark our work, we needed baseline data to determine where we are right now in terms of our Guiding Principles, and that it would be essential to get into classrooms and capture what students are saying and doing, and utilize this information to set goals and move forward with this work. We believed fervently that this work can not be done by administrators alone, and we decided to tap into the human and social capital of our 5th Domain Steering Committee to engage them in the process of gathering evidence.

With some training about the purpose and process of Instructional Rounds in service of gathering evidence, our Steering Committee began the work of going into classrooms and collecting baseline data this spring. We plan to expand this activity next year with the entire 5th Domain Committee so that we gather enough evidence to provide us with a clear picture of where we are, and then engage stakeholders - including students - in inquiry-based discussions about where we go next, and how we get there.

Additionally, it is essential that we help teachers make the connections between the four domains of the Westport 2025 lens and the Guiding Principles, so that this is not viewed as a new initiative, but rather as the fabric of the Westport Public Schools.

While we began by thinking of this as a "5th Domain" to the Westport 2025 Lens, we have come to understand that a new visual representation, with Westport's Guiding Principles at the core, would best represent our vision for the skills and dispositions we strive to cultivate in all members of our school community.

** Whole School Learning Goal is a mandated component of the Teacher and Administrator Evaluation Plans.*

Westport's Guiding Principles

Development and Future Direction



April 25, 2016

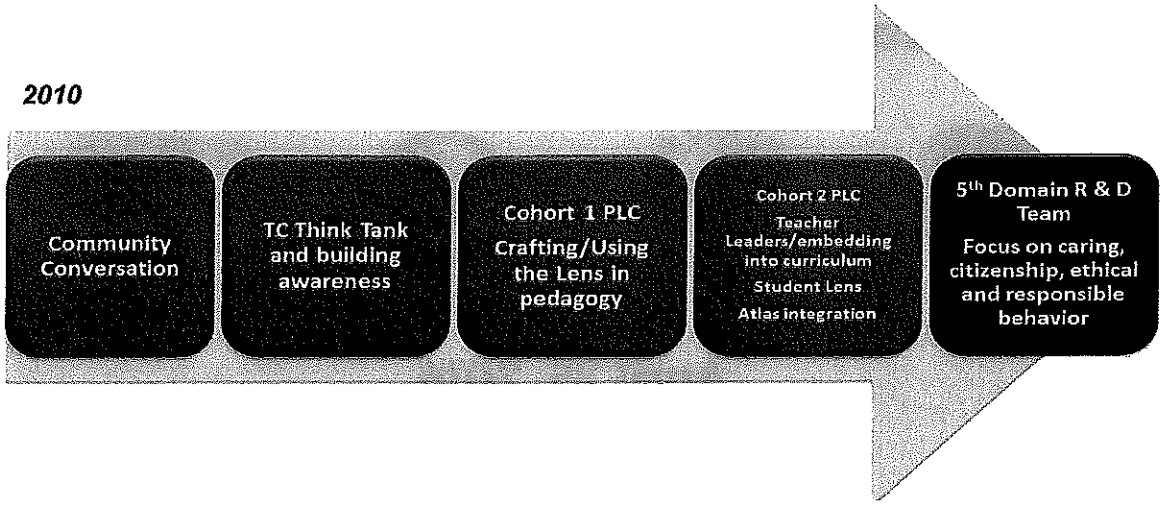
Critical Lens for Teaching and Learning

Critical Thinking Capacities	Creative Capacities	Communication Capacities	Global Thinking Capacities
Interpreting	Questioning and Curiosity	Reflecting and Meta-analysis†	Engaging in Real-world Problem Solving
Analyzing	Observing and Imagining Possibilities	Considering Purpose and Varied Media to Express Ideas	Engaging in Global Issues
Synthesizing and Making Applications	Risk-taking and Tolerating Ambiguity	Influencing and Negotiating to Reach Goals	Engaging in Multiple Perspectives
Evaluating	Agility and Adaptability	Collaborating Strategically	Working Across Disciplines

westport2025

meeting the global challenge

Development of "Westport 2025" Learning Expectations



Gathering Stakeholder Input → Setting the Vision Inspiring → Planning and Piloting → Enacting and Sustaining → Reflecting and Modifying

History of the "5th Domain"

- **Stimuli**
  - **SHS NEASC Accreditation Self-Study**
    - Thinking about Civic and Social Expectations
  - **Responsive Classroom, Social Skills, Developmental Guidance, Academic Integrity**
    - How do these fit into our learning expectations?

Initial Process: 2014-15

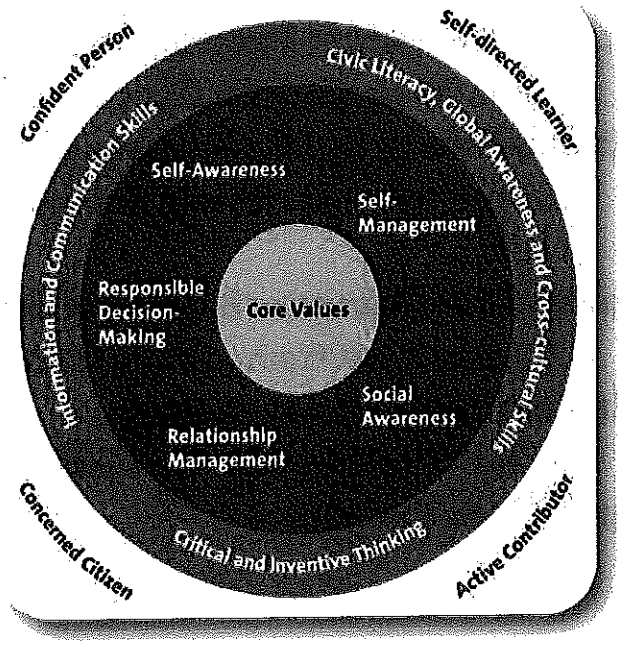
- **Faculty Breakfast Presentations, November 2014**
  - Imperative for a Social, Emotional, Civic expectations
- **Establishment of 5th Domain Committee**
  - K-12 teachers representing different buildings and roles in the district
- **Spring 2015 Community Conversation**
  - Gathering input from parents, community members
- **Administrative goal setting**
  - Student Outcomes and Theories of Action
- **Input from Faculty**

Process: 2015-16

- **Established Steering Committee**
  - Focused work on defining the goals and terminology
- **Input from Tri-State Study Group**
  - Feedback from other high-performing school districts on our process and future direction
- **Synthesized thinking from stakeholder groups**

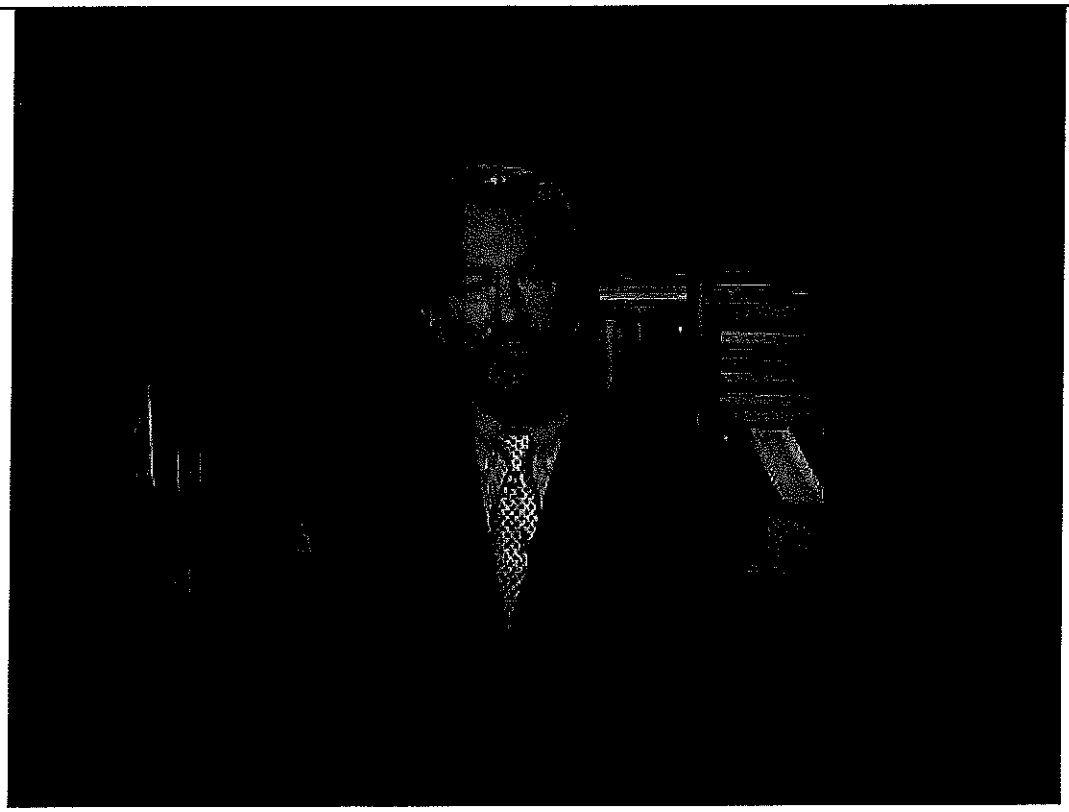
Seeking Models in the Educational World

- **Singapore**
  - 21st Century Competencies Framework

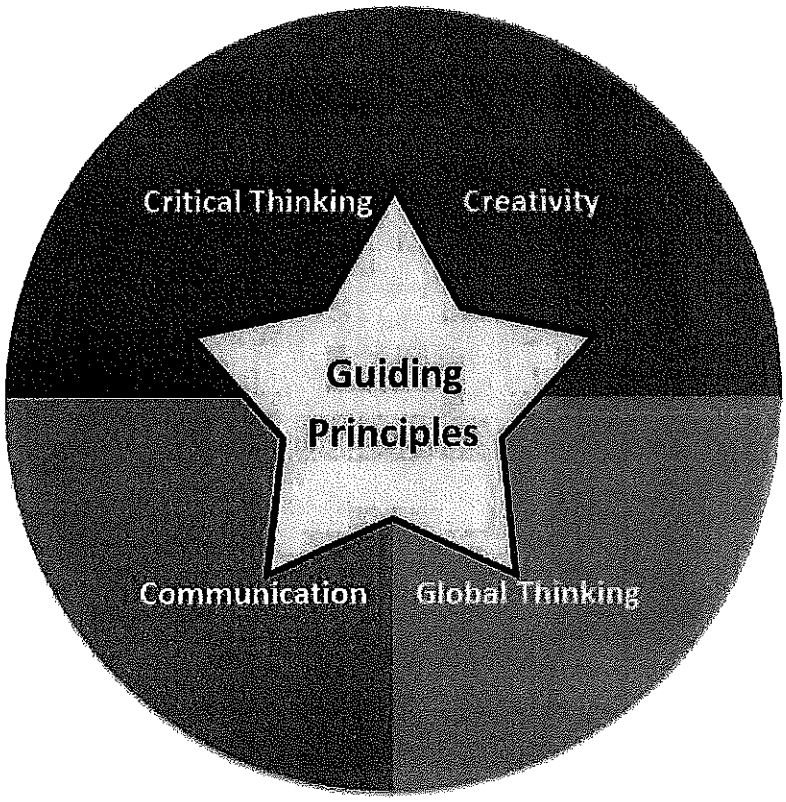


Seeking Models in the Educational World

- **Haas School of Business, University of California, Berkeley**
  - One of the top rated business programs in the U.S. and the world
- **Defining Values and Principles**
  - What employers can expect from Haas graduates
  - What are the characteristics of successful Haas students beyond their academic preparation?



https://www.youtube.com/watch?v=zszSEcA_IMQ



The Guiding Principles

- **Emotionally and Socially Aware**
- **Kind With Sincerity**
- **Principled in Thought and Action**
- **Learning Always**

Emotionally & Socially Aware

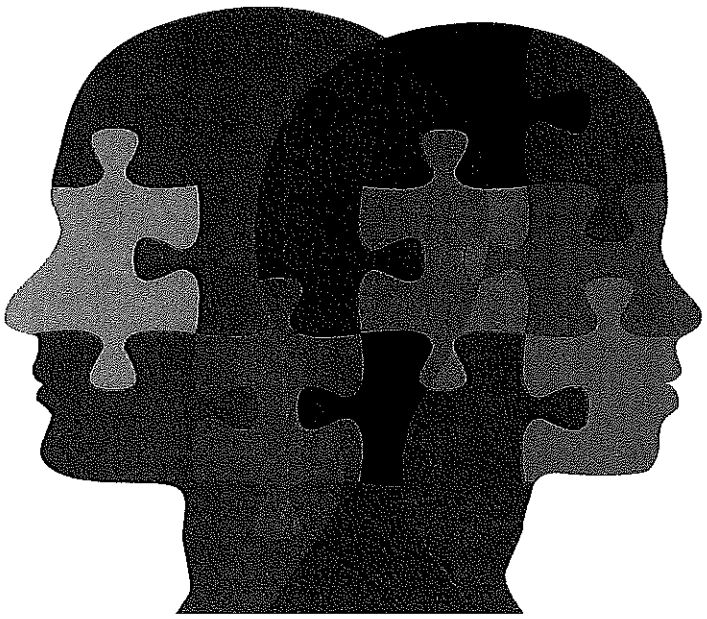


Image: http://motivationsmagazine.com/use-mindfulness-to-increase-emotional-inteligence/

Kind with Sincerity

Image:https://www.pinterest.com/pin/280771357991826875/

Principled in Thought and Action

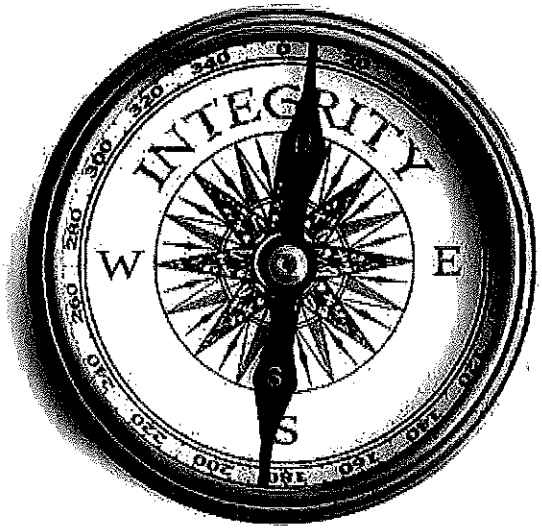
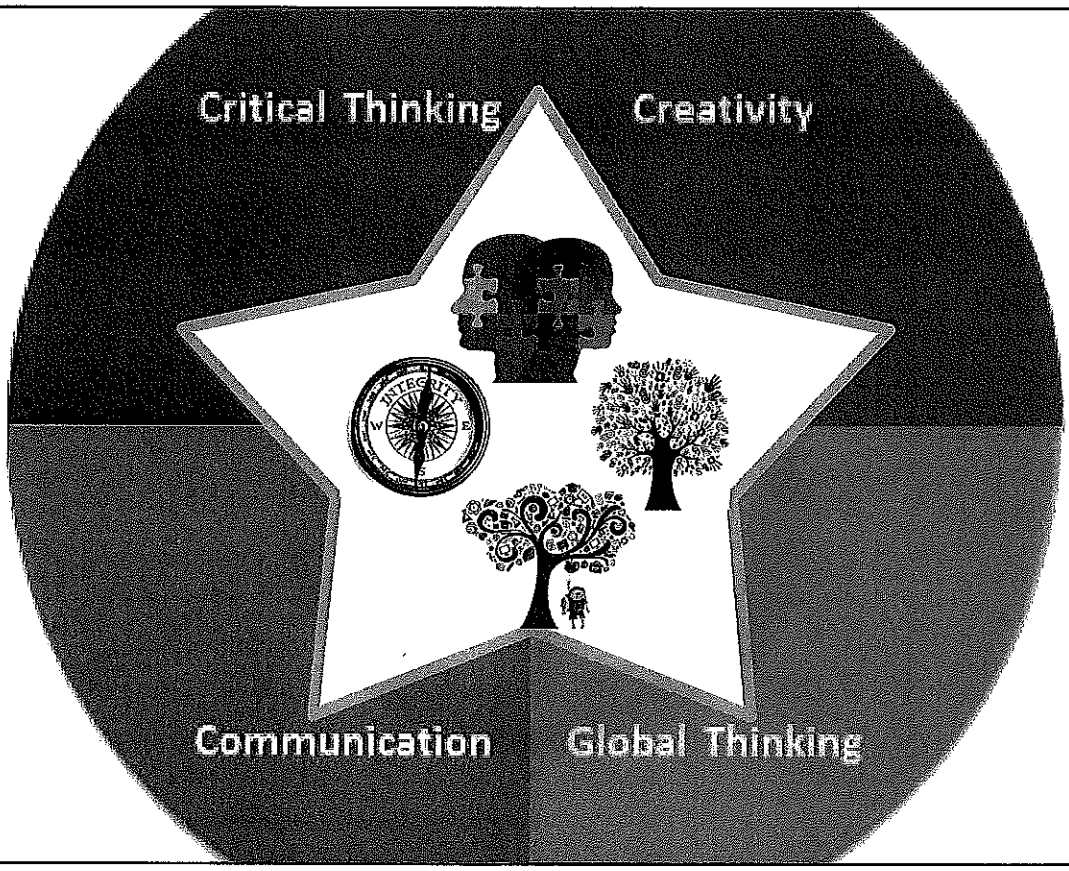


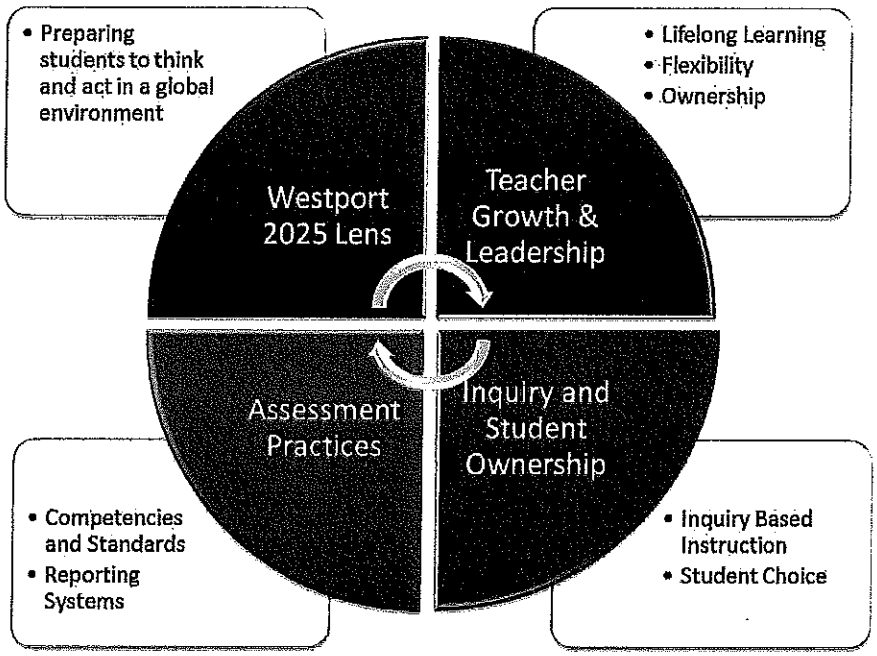
Image: http://miaadlerozair.com/say-what-you-mean-and-mean-what-you-say-2/integrity-compass/

Learning Always

Image: http://www.helenmaffini.com/



Next Steps



Benchmarking & Continuous Improvement

- **Instructional Rounds**
  - Steering committee and Principals trained in instructional rounds model
  - Observe and record the guiding principles in action
    - Classrooms, Cafeterias, Playgrounds, Hallways
  - Reflect on evidence gathered
  - Compare across schools

- **School Goals**
  - Schoolwide and individual teacher evidence of the guiding principles

Next Steps: Spring & Fall 2016

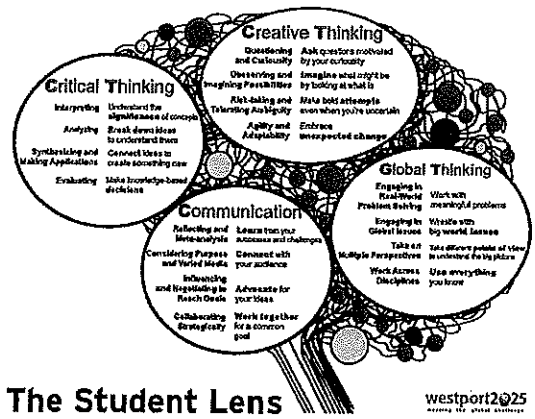
- **Share Guiding Principles with all stakeholders**
- **Engage stakeholders in discussions about what each principle means**
  - what they look like
  - what they sound like in elementary, middle, high school
    - Students
    - Staff
    - Parents

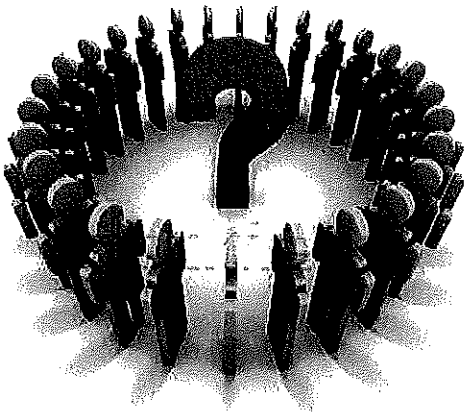
Next Steps 2016-17

- **Engage entire 5th Domain Committee in Instructional Rounds**
- **Professional Development**
- **Revisit Theories of Action**
- **Parent University**
- **Engage additional staff members in Instructional Rounds**
- **Plan for Tri-State Consultancy/Visit**
- **Student Voice in visualization**

Building Culture ~~for~~ *with* students

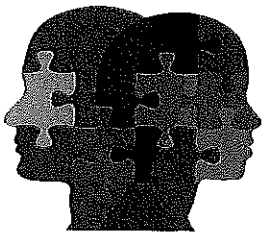
- **Definition, Visualization, Communication**





Westport's Guiding Principles

Emotionally & Socially Aware



Principled in Thought and Action

Kind with Sincerity

Learning Always

What's a Theory of Action and Why Do We Need One?

by Harriette Thurber Rasmussen ~ coach and partner with Abeo School Change.

A wise colleague once noted that even the most researched strategy is no better than your best bet. However certain you may be, you'll not truly know if it works until you try it. So until it's proven – in *your* context, with *your* students, and with *your* teachers, it's still at best (or worst) a guess. A theory.

That's my first point. That strategy is a guess and that there is some theory behind a decision to use one particular strategy over another, or at least there should be. Having a theory of action that accompanies an improvement strategy requires that someone or, better yet, someone(s) have articulated a rationale behind the strategy. Why do we think professional learning communities will improve student learning? How will adopting a new literacy program grow stronger readers and writers? What is the thinking behind an emphasis on teacher evaluation as it relates to student learning? It makes good sense to think through a decision to choose one action over another and even better sense to make this thinking public. This thinking, your rationale, is, in short, your theory of action.

A theory of action is at its core, a simple IF, THEN statement. IF we have professional learning communities, THEN student learning will improve. IF we adopt a new literacy program, THEN our students will be stronger readers and writers. IF we emphasize teacher evaluation, THEN student learning will improve.

But do you note something amiss with these statements? They're pretty general and there is not really any linkage between the IF statement and the THEN conclusion. For example, it's a pretty big leap to imagine that just having PLCs will improve student learning and yet this theory is in play all across the country.

This is my second point about theories of action. Its power lies within the specificity of thought, in the explicit reasoning that calls attention to essential steps and checkpoints. If left unstated, it is far too easy to just put a new strategy into place and during implementation miss critical

elements that will render a good idea, such as professional learning communities, a success or failure when it comes to impacting student learning.

So let's try this again and stretch it out into what Liz City (*Instructional Rounds: A Network Approach to Improving Teaching and Learning*, 2009) calls a storyline using professional learning communities as an example. Here's how a more explicit theory of action might look:

IF we have professional learning communities, THEN we will have a scheduled time for teachers to discuss their work and the work students produce.

And IF teachers share their work and the results with each other, THEN they will be able to learn from each other's successes and draw upon the expertise of their colleagues around common challenges.

And IF teachers draw upon the expertise and successes of their colleagues around common challenges, THEN teachers will be able to incorporate new and successful strategies into their practice with support from their colleagues.

And IF teachers incorporate successful strategies into their practice, THEN students will benefit from more effective teaching.

AND THEN student learning will increase.

What this example shows is that any improvement strategy is a sequence of strategic actions and that each must have an associated rationale (or theory). Why is this important? Because if you are not clear on what each element is intended to produce, you'll not be able to test whether your theory was correct and it's entirely possible you'll get down the road and decide your strategy is not having the desired effect on student learning and dump it. And while it may be that the strategy was ineffective, it's just as possible that one element wasn't implemented quite the way you expected, or that you needed to tweak something in the middle.

Let's go back to the PLC example again. In my practice I have watched district after district mandate professional learning communities after an inspiring workshop from the DuFours or a book study. And the most common response to my question, "how are they working for you?" is "some are and some aren't." And just as often, no one is ever able to point to a link to student learning as a result. So a good idea runs the risk of investing tremendous resources with no

outcomes that affect students, or getting dropped in favor of the newest fad from the latest conference.

But a theory of action around PLC's that specified what was expected to happen establishes a clear path toward the goal of impacting student learning. It becomes a set of checkpoints to make sure the expected outcomes at each step along the way are realized and suggests important interventions if they are not. What if, for example, early in the implementation process it was discovered that although the schools had found blocks of time for PLC's to meet, the meetings consisted of nut and bolts or task assignments? Or that the teachers look at student work but not at their own?

This is my third point and perhaps the most important. Strategies, *because they are best bets,*need to have regular and specific checkpoints so that you're able to test the theory behind the actions underway. A sequential theory of action, as in the example above, offers certain proof points that can suggest whether or not you're on the right track, whether an intervention could be helpful, or if there are some important steps to your theory that were missing. Harvard University Professor Richard Elmore, who was largely responsible for bringing the concept of theories of actions to the world of K-12 education, says that theories of action, if written at all, should be written in pencil. If it's doing its job, your theory of action will be revised and adapted to reflect *your* learning as you follow the predicted and actual events of strategy implementation.

So what's a theory of action? Your best thinking made explicit.... Your rationale for choosing one strategy over another.... Your predicted course of action with identified checkpoints and evidence that it's working, or not. Why do you need one? Because even the best ideas can fall flat when we enter that perilous place called implementation. And our students rely on our diligence to make sure that our best bets are working for them.

Can we help you think through your theory of action? Let us know!

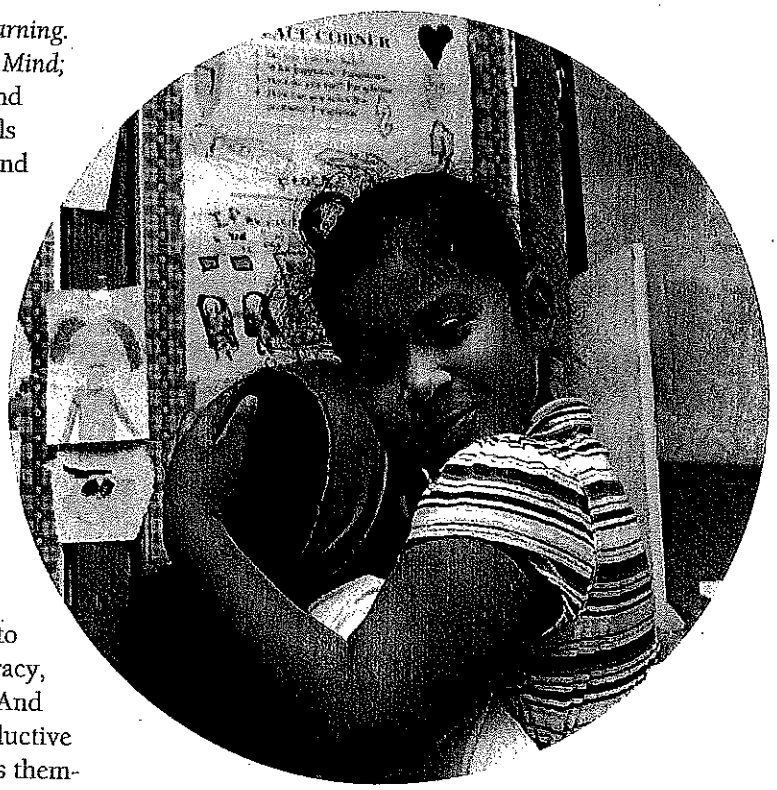
http://www.abeoschoolchange.org/blog/whats-a-theory-of-action-and-why-do-we-need-one/

Hard Thinking About SOFT SKILLS

Habits like persisting and drawing on past knowledge are some of the most essential dispositions we can teach.

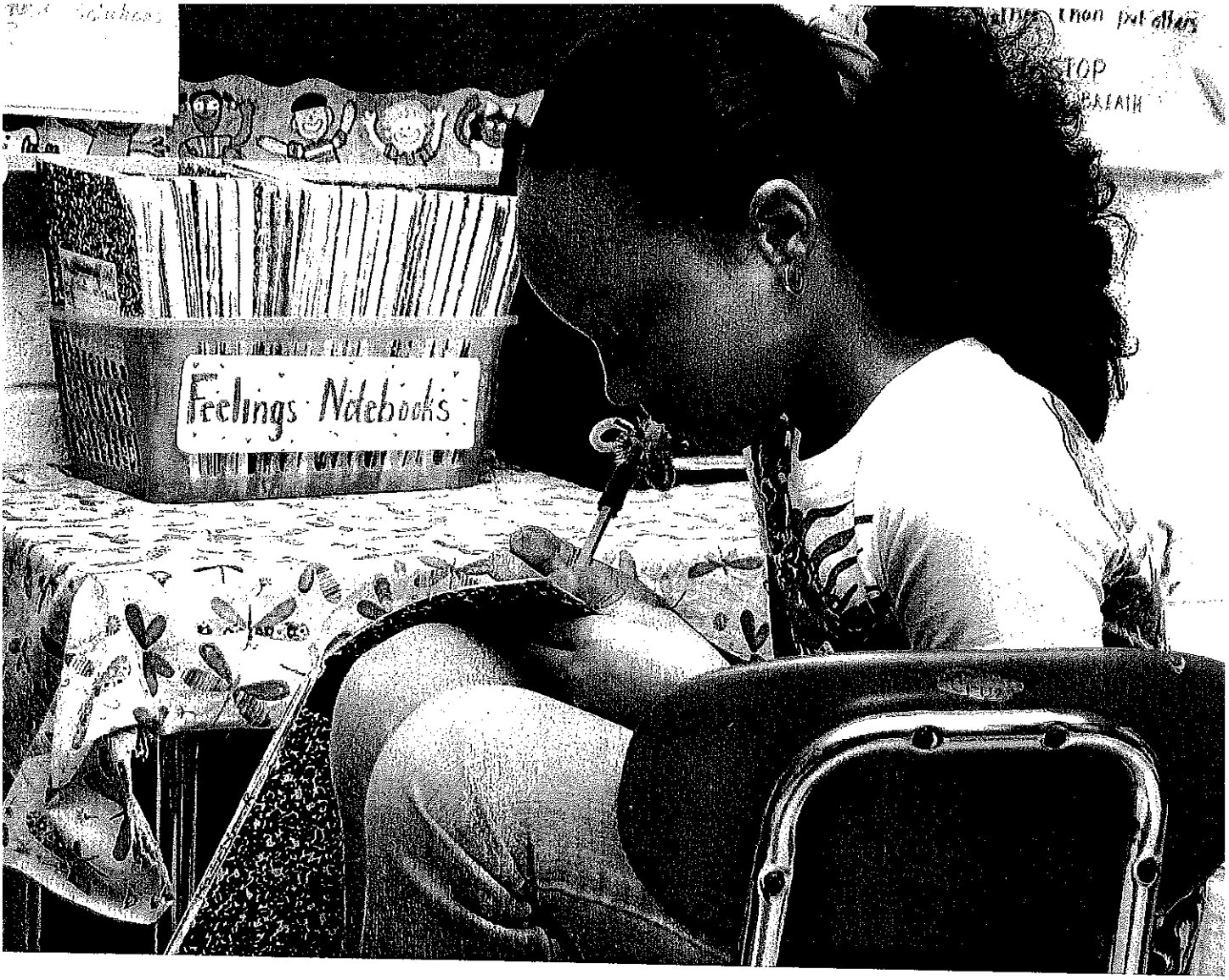
Guy Claxton, Arthur L. Costa, and Bena Kallick

Twenty-first century skills. Social-emotional learning. Grit. Mindsets. Character strengths. Habits of Mind; habits of the heart. People use these words and phrases—and similar ones—to describe skills that they also often refer to as *noncognitive* and Conley, 2013; Kamenetz, 2015). Although most le in academics and business consider these skills crucial for a well-educated individual, the lan- e people use reflects some problematic attitudes. e term *21st century*, for instance, implies that attitudes have only just been discovered or eculiar to the demands of the current day. Per- g in the face of difficulty or adopting someone perspective have probably been valuable incli- ns since the dawn of human history and are to continue to be important well into the 22nd ry. And calling these skills soft or noncognitive their importance.



© GALE ZUCKER

latever terms we use, they should point accurately to nds of valuable outcomes—beyond literacy, numeracy, ores, and grades— young people will need in life. And nguage should be accessible and conducive to productive ng and planning for teachers, parents, and students them- . We've come to view these terms as having advantages and antages. Carefully considering several key terms will help



© GALE ZUCKER

us clarify the meaning of each phrase and boost educators' efforts to develop these qualities and inclinations in students.

What's in a Word?

Skills

First, let's tackle the word *skill*. This term can be useful in emphasizing that such outcomes as being inquisitive or persisting in the face of difficulty are practical behaviors, responses to situations rather than decontextualized displays of knowledge. It reminds us that there is more to real life than being able to call facts quickly to mind or checking the correct box on a test. In a fast-changing world, education has to prepare learners to *act* intelligently, skillfully, and with good judgment when they meet the unexpected.

However, we usually think of a skill as a procedure someone can be trained to do. Developing a skill seems like a technical matter. But guiding someone to develop an attitude of curiosity or self-evaluation, for example, isn't like training someone to shoot a rifle or make a béchamel sauce. Curiosity has a skillful aspect, certainly, but it also involves a deeper pleasure in making discoveries and an openness to novelty and challenge. To develop such inclinations, students need ongoing opportunities, encouragement, and guidance in a wide range of contexts, not just "training." Attempts to train students in thinking skills have often been ineffective. The skills developed don't last, don't transfer to new situations, and don't come to mind when they are needed. (Swartz, Costa, Beyer, Kallick, & Reagan, 2008).

Guiding someone to **develop an attitude of curiosity or self-evaluation** isn't like training someone to shoot a rifle or make a béchamel sauce.

Further, we must communicate more clearly about how to distinguish among types of thinking, thinking skills, and thinking dispositions. For example, the "4 C's" of 21st century skills (Partnership for 21st Century Learning, 2011)—critical thinking, creative thinking, communication, and collaboration—might be considered

ɔes of thinking" that we should
:h students to engage in. These are
ɔortant types of thinking, and stu-
.ts do need to learn how to perform
m on appropriate occasions. Merely
aging in these types of thinking,
vever, doesn't mean that students
age in them carefully or skillfully.
dents can, for instance,
aborate in hasty, sloppy,
superficial ways (Swartz
l., 2008). Simply intro-
ing students to these
:s of thinking doesn't
ıre that they will
elop thinking *skills*—or
disposition to use those
ls effectively when faced
ı complex problems.

ık about what the
d *soft* connotes. It's the
.ous contrast to *hard*—as
ıe phrases *hard data*,
l *evidence*, and *hard*
king. If *hard* implies
ctive, clearly defined
reliable, *soft* must imply
ective, fuzzy, and unre-
e—softhearted rather
hardheaded. The ter-
ɔlogy implies that these
ed outcomes are sentimental or
m and fuzzy." It immediately
ermines their claim to serious
ıtion, suggesting that we don't
ider them as important as the
d" data that's presently driving
untability.
ıere are no right answers to prove
dent has developed one of these
, no test scores to compare, no
ıges or standard deviations to
. So *soft* also implies that these
ɔmes are impossible to measure
all outside any framework of
ıntability.
ıere is hard evidence, however,
oth the importance of traits like resilience or a growth mindset and the effectiveness of certain methods for cultivating them (Edwards, 2014). Although the attempt to define levels of such attributes is fraught with difficulty, that doesn't mean it's impossible to define levels and show evidence of development.


© SUSIE FITZHUGH

It's true that such skills are never fully "mastered," so they cannot be assessed using summative, right-answer forms of assessment. But such assessment tools as interviews; open-ended questionnaires that allow students to draw from their personal experiences; portfolios demonstrating growth over time; and performance tasks and capstone projects—especially combined with journals in which students reflect on their use of dispositions in such projects—can yield inferential but valid data on how skilled students are, for example, at collaborating or persisting through difficulties.

In a sense, these are the "hardest" data because they involve student voice, direct observation, and real-time performances. After all, which data are more significant indicators that a student will be a lifelong learner: scores measuring recall of information from an assigned text or the fact that a student voluntarily chooses to read? Bubbling in the correct answer to a complex math problem or persisting over time on a problem that demands insight and creativity?

Noncognitive

In an attempt to distinguish attitudes, inclinations, beliefs, and dispositions from content knowledge, researchers coined the somewhat awkward term *noncognitive* for everything that was not, in their view, grounded in or directly derived from rational thought (which they labeled *cognitive*).

The term *noncognitive* tries to make space in our thinking for important

outcomes of education that aren't simply concerned with the storage, retrieval, and rational manipulation of knowledge. But it sets up a false opposition between cognition and other aspects of a person, such as sociability—and between thinking (good) and emotion (problematic).

Every thought and action is accompanied by emotions, which originate in the amygdala. Feel-good neurotransmitters (serotonin, endorphin, dopamine) are released whenever we experience such feelings as satisfaction with the completion of a complex task, rapture from observing a sunset, camaraderie in working with others, or the Eureka moment of enlightenment.

Being a skillful collaborator, for instance, involves cognitive, emotional, and social aspects, used together. You need to be able to see the world through other people's eyes, which involves the highly cognitive ability to build accurate mental models of their knowledge structures and to keep them updated during a conversation. And persisting with difficult problems involves both cognitive strategies and a general tolerance for uncertainty.

The very term *noncognitive* suggests that cognition is well defined and well understood, while everything else exists in a dark zone around this patch of intellectual light. Again, the language itself carries a derogatory attitude toward some of the most valuable outcomes of learning.

A Better Term: *Dispositions*

So what should we call these essential learnings? We suggest *thinking dispositions*. The word *disposition* is now preferred by many education leaders (Costa & Kallick, 2014; Ennis, 1996; Nelsen, 2014). Teams at Harvard's Project Zero, for example, have made a strong case for using the terms *thinking dispositions* and *learning dispositions* (Perkins, Jay, & Tishman, 1993; Ritchhart, 2002).

The term *dispositions* addresses several points we've made: The word itself indicates that it's not only a person's ability that counts, but also the person's perception and inclination to make good use of that ability in appropriate situations. John Dewey (1933) said, "Knowledge of methods alone will not suffice; there must be the desire, the will to employ them. This desire is an affair of personal dispositions" (p. 30). Perkins and colleagues (1993) describe dispositions as, "acquired patterns of behavior that are under one's control and will as opposed to being automatically activated, and they are overarching sets of behaviors, not just single specific behaviors." And we like one of Webster's definitions of *disposition*: "Natural fitness or tendency; one's inclination or propensity."

The term non-cognitive suggests that cognition is well defined and well understood, while everything else exists in a dark zone around this patch of intellectual light.

Can We Teach for Dispositions?

Dispositions like thinking interdependently, striving for accuracy, and thinking flexibly are crucial to a person's success in school and life. We suggest, therefore, that when educators make decisions about what students should know or be able to do as a result of participating in educational experiences, they include dispositions as explicit outcomes.

But some questions arise. Can we teach dispositions directly? And if dispositions are patterns or clusters of behavior, how can educators isolate any one, help students develop it, and adequately assess whether students are getting better at demonstrating it (Conley, 2013)?

Although such attributes may take a lifetime to learn, they *are* teachable and observable. Dispositions needn't be mindless habits. When facing a problematic situation, people can consciously choose to draw on powerful ways of thinking and acting—such as striving for accuracy and drawing on past knowledge. And as a person becomes more *disposed* to use a particular facet of practical intelligence, that disposition can grow and become more sophisticated.

For example, when students engage in project-based learning, they will need to develop the disposition of thinking about their thinking. They'll need to pay attention to how they plan, process, and present their products. Teachers can ask students to become conscious of their strategies for learning through reflecting in a journal about how they're persisting or whether they could change their course of action by thinking flexibly. Upon the project's completion, teachers might invite students to reflect on which strategies they used, how those strategies helped them with their final product, and in what other situations—in life, school, careers, and so on—they might apply dispositions

: persistence and flexibility.
'oung children might learn about
habits of mind through role-
ying or even through talking about
at practices help them succeed in
ying games. The importance of
king the dispositions explicit is that
lents learn the meaning and the
tegies associated with each dispo-
on. This helps them grow the dis-
itions into habits of mind.[1]
)ispositions can serve as an
rnal compass to guide decisions
actions (Costa & Kallick, 2014).
chers might encourage students
evelop the habit of asking them-
es, anytime they are confronted
1 a challenging situation, What is
most thoughtful action I can take
t now? Students can learn to ask
nselves metacognitive questions
these:
How can I draw on my past suc-
es with such problems?
What do I already know about the
)lem, and what resources do I have
light I generate?
How might I approach this
)lem *flexibly,* looking at the situ-
1 in a fresh way? How can I draw
n my repertoire of problem-solving
egies?
To make this challenge clearer,
I break this problem into its com-
nt parts and develop a strategy for
rstanding and accomplishing each
? Are there data I can draw on?
How do my beliefs, values, and
s interact with this problem? Are
ttitudes or emotions blocking—
hancing—my progress?
achers foster the development
etacognitive self-questioning by
ig such questions as a regular
ice before, during, and after
cts, lessons, or units. We should
urage students to communicate
clarity and precision about what
ow they are thinking, what strat-
they use, and how they might
apply these insights to new situations. When students are about to engage in a science lab, for example, invite them to consider the questions being posed, what they already know and are aware of, and how they might apply past knowledge to this new learning situation. Gradually, students will become more self-aware and more self-directed. Teachers will do less teaching, and students will do more thinking and learning.

Being **a skillful collaborator involves cognitive, emotional, and social aspects,** used together.

Dispositions and School Culture

We believe a school's culture will also benefit when students—and teachers—develop these kinds of attributes, which are as cognitively demanding as any technical "skill." Over time, as everyone in the school becomes effective in employing the dispositions described here, positive interactions and practices will pervade the school. When everyone in a school agrees that it's as essential for students to develop these dispositions as to gain academic abilities, that's a powerful shared vision for students' future lives. And there's nothing "soft" about that.

[1]Our website, www.instituteforhabitsofmind.com, offers several free resources for teaching key dispositions.

References

Conley, D. T. (2013, January 22). Rethinking the notion of "non-cognitive." *Education Week.* Retrieved from www.edweek.org/ew/articles/2013/01/23/18conley.h32.html

Costa, A., & Kallick, B. (2014) *Disposition: Reframing teaching and learning.* Thousand Oaks, CA: Corwin.

Dewey, J. (1933) *How we think.* Boston: D. C. Heath and Company.

Edwards, J. (2014). *Habits of mind: A synthesis of the research.* Westport, CT: Institute for Habits of Mind.

Ennis, R. H. (1996). Critical thinking dispositions: Their nature and assessability. *Informal Logic,* 18(2 & 3), 165–182.

Kamenetz, A. (2015, May 28) Non-academic skills are key to success. But what should we call them? Retrieved from National Public Radio Education at www.npr.org/sections/ed/2015/05/28/404684712/non-academic-skills-are-key-to-success-but-what-should-we-call-them

Nelsen, P. J. (2014, May 23). Intelligent dispositions: Dewey, habits and inquiry in teacher education. *Journal of Teacher Education.* DOI: 10.1177/0022487114535267 Retrieved from http://jte.sagepub.com/content/early/2014/05/23/0022487114535267

Partnership for 21st Century Learning. (2011). *Framework for 21st century learning.* Washington, DC: Author. www.p21.org/storage/documents/1.__p21_framework_2-pager.pdf

Perkins, D. N., Jay, E., & Tishman, S. (1993). Beyond abilities: A dispositional theory of thinking. *Merrill-Palmer Quarterly: Journal of Developmental Psychology,* 39(1), 1–21.

Ritchhart, R. (2002). *Intellectual character: What it is, why it matters, and how to get it.* San Francisco: Jossey-Bass.

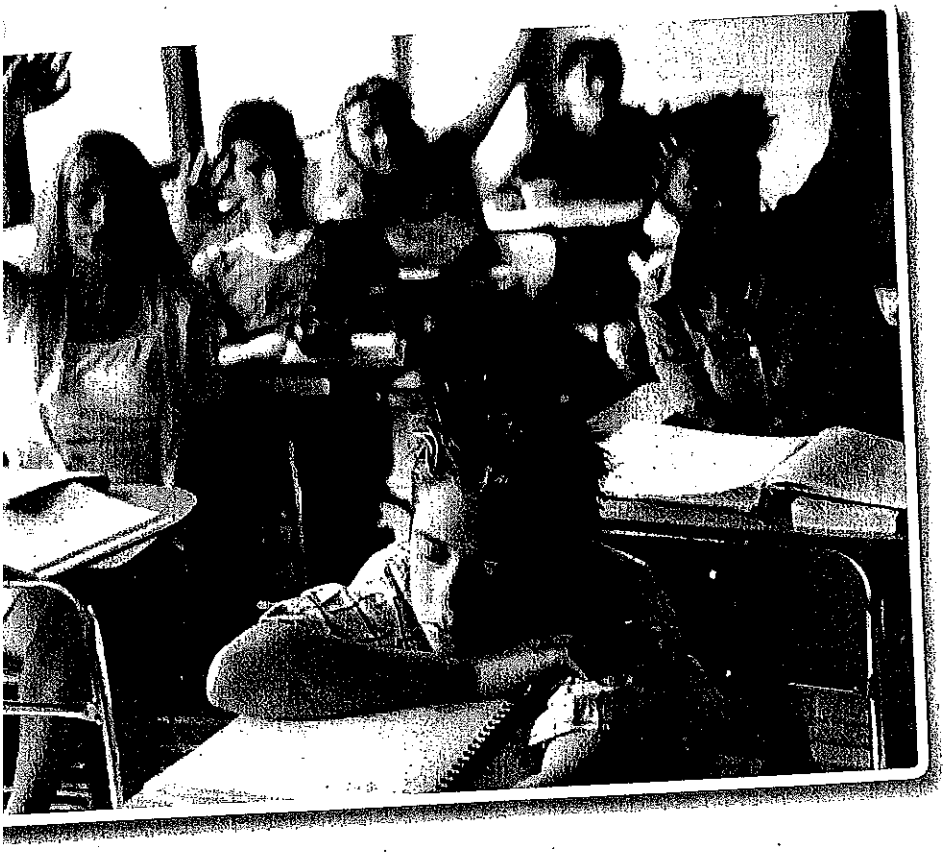
Swartz, R., Costa, A., Beyer, B., Kallick, B., & Reagan, R. (2008). *Thinking based learning.* New York: Teachers College Press.

Guy Claxton (Guy.Claxton@winchester.ac.uk) is emeritus professor of the learning sciences at the Centre for Real-World Learning, University of Winchester, United Kingdom. **Arthur L. Costa** (artcosta@aol.com) is professor emeritus at California State University in Sacramento. **Bena Kallick** (Kallick.Bena@gmail.com) is an educational consultant in Westport, Connecticut.

Emotions MATTER

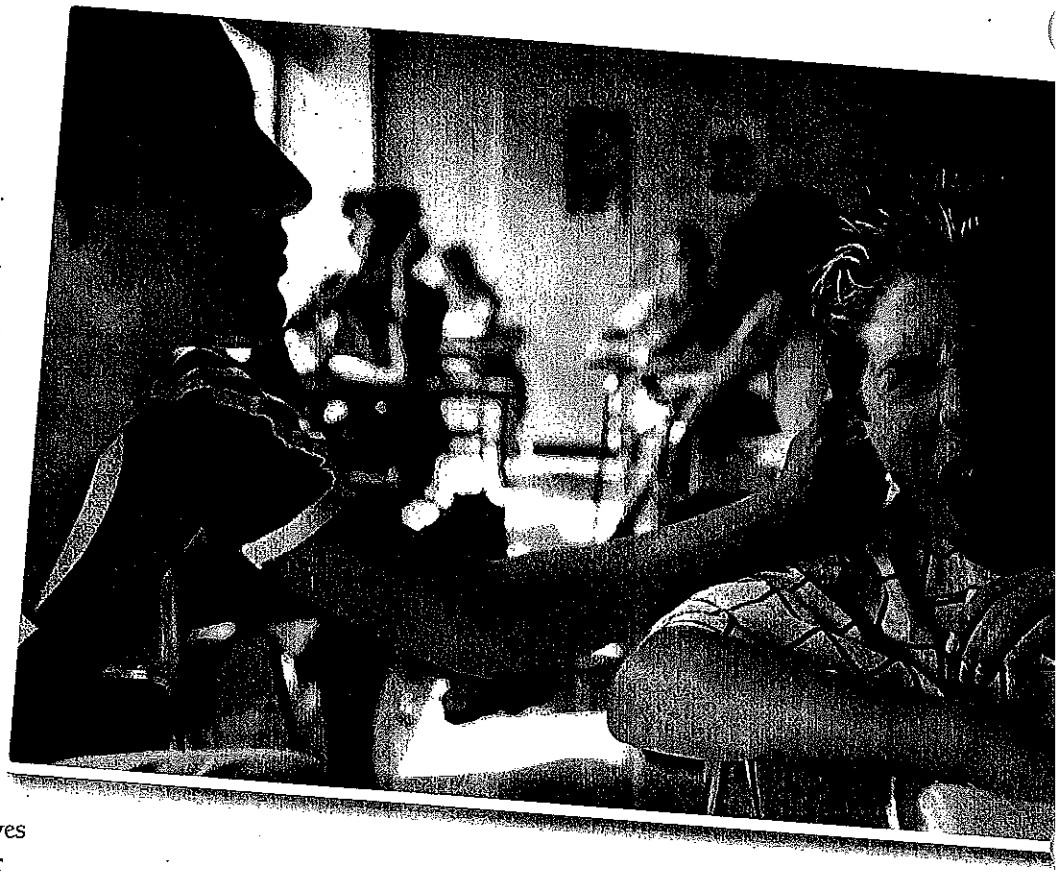
Cultivating the emotional intelligence of both students and teachers is our best hope for safe, caring, and effective schools.

Marc A. Brackett and Dena Simmons



Jason is one of those middle school students who come with a warning label—a long list of stories of defiance and disobedience. Most mornings, Jason eats a quick breakfast after little sleep. He rushes out the door while being lectured by his mother about being late for school. He has a 30-minute walk to school, and he usually travels alone because his neighborhood friends have already left.

Today, like many days, Jason arrives to school late. When he comes in, his first-period math teacher scolds him in front of the class. Jason and this teacher have bumped heads since the beginning of the school year because Jason consistently arrives late. As a result, he has fallen far behind. Jason has missed the beginning of the lesson and is not clear about its objectives, so he ends up doodling mindlessly for the remainder of class. As he leaves, his teacher sarcastically remarks, "Maybe tomorrow, you'll actually get here on time."



In English, Jason's favorite class, things go more smoothly. His teacher greets him at the door with a smile, does a quick check-in, and notices that Jason is "off." She recommends that he write in his journal to help him relax. Jason does so for a few minutes and then joins the class, remaining mostly on task.

In third period, Jason's social studies teacher returns an assigned paper. Jason expects a high grade because he put in a lot of effort. On learning that he received a *C*, Jason immediately shuts down and mutters, "I hate social studies." He fiercely crumples up the paper and shoves it into his backpack. His teacher notices and sends him to the principal's office. On the way, he passes Matt, another 6th grader, who makes an insulting remark. Jason retaliates with a nasty remark of his own just as the principal walks out of her office. She demands that Jason apologize, but he refuses. The principal gives both boys conduct referrals and calls their parents. Jason leaves the office in a foul mood.

The remainder of the day has its ups and downs. At recess, Jason appears to be in better spirits. He plays basketball and looks like he is having fun. Lunch also goes smoothly. He sits with a group of friends and talks about the upcoming basketball game on the weekend. But during fifth-period science class, Jason has a pop quiz for which he is unprepared. In Spanish, the last class of the day, the substitute teacher reprimands Jason for chatting while he should be reading. The teacher also criticizes Jason for not looking her in the eye when she speaks to him. After school, Jason walks home, where his mother lectures him yet again about his behavior. Jason eats dinner with his mother and two brothers, does about half of his homework, and falls asleep after midnight watching television.

Boredom, anxiety, and fear disrupt concentration and **interfere with the ability to learn.**

It's easy to observe Jason's tardiness, misbehavior, and disengagement and make assumptions about the reasons for his actions. Perhaps, Jason is disengaged in math because he's tired and has a bad relationship with his teacher. Perhaps he enjoys English because he connects with his teacher and acts out in his social studies class because he is frustrated by his low grade. But how do we know what Jason is actually feeling throughout the day? And what difference does it make?

Why Emotions Matter

The science of emotions provides a lens that can help us understand Jason's experiences at school and thus serve him, and all students, more effectively. It also helps us recognize how our own emotions affect our teaching practices, our interactions with students, and our ability to model healthy emotional responses in challenging situations.

At the Yale Center for Emotional Intelligence, we study how emotions drive teaching and learning. We also develop evidence-based approaches to teach emotional intelligence to educators and families. Here are four reasons we believe that emotions matter a great deal in school (Brackett & Rivers, 2014).

For attention, learning, and performance

Emotions can either enhance or derail classroom performance. Interest and amusement, for example, harness attention and promote greater engagement. Boredom, anxiety, and fear disrupt concentration and interfere with the ability to learn. Extreme emotions like chronic stress, sometimes arising from trauma or the perception of danger, can result in the persistent activation of the sympathetic nervous system and the release of stress hormones like cortisol. Prolonged release of these hormones affects the brain structures associated with executive functioning and memory, hindering a student's ability to learn and thrive in school and in life.

For decision making

Emotions influence decision making in both harmful and beneficial ways. People in pleasant moods tend to perceive individuals, places, and events more favorably than people in unpleasant moods do. Pleasant moods also tend to enhance mental flexibility and creativity. In contrast, anger or sadness triggered by one situation may carry over into unrelated situations, causing people to lash out at someone who had nothing to do with the original anger or sadness.

One study we conducted with middle school teachers demonstrated that emotions could influence teacher behavior. To induce sadness, we assigned one group of teachers to write about a negative memory for five minutes; to induce a happier mood, we assigned another group to write about a positive memory. We then asked all the teachers to grade the same essay, written by a 7th grade student, on its creativity, structure, spelling and punctuation, vocabulary, and overall quality. The ratings were about one full grade higher in the happy group of teachers than in the sad group. Interestingly, only 14 percent of the teachers believed that the mood induction influenced their evaluation of the essay (Brackett, Floman, Ashton-James, Cherraskiy, & Salovey, 2013).

For fostering good relationships

Emotions revealed in the face, body, and voice send signals about approachability. For example, sadness, displayed with a downward gaze and frown, indicates that a person needs help. Joy or happiness, expressed by a genuine smile, indicates that it's safe to approach and that social support is available. Anger, displayed with furrowed eyebrows and pressed lips, sends a message to stay away and can also elicit fear responses in others. Put simply, the emotions that teachers and students display in class influence the teacher-student bond, which is crucial to effective teaching and learning.

For health and well-being

Emotions release a variety of neurotransmitters that influence our physical and mental health, including our immune-system functioning. Stress, for example, is associated with increased levels of cortisol, which has been shown to lead to weight gain. High levels of serotonin, on the other hand, tend to boost mood and curb the appetite.

Pleasant emotions can provide many health benefits, including greater resilience to trauma. People who have learned healthy ways to manage emotions like stress and anger are likely to experience greater psychological well-being.

Getting in Touch with Your Emotions

As educators, developing a deeper understanding of our own emotions can enable us to get our own needs met, to support all students, and to create the best possible learning environment. To build greater emotional awareness, ask yourself these questions:

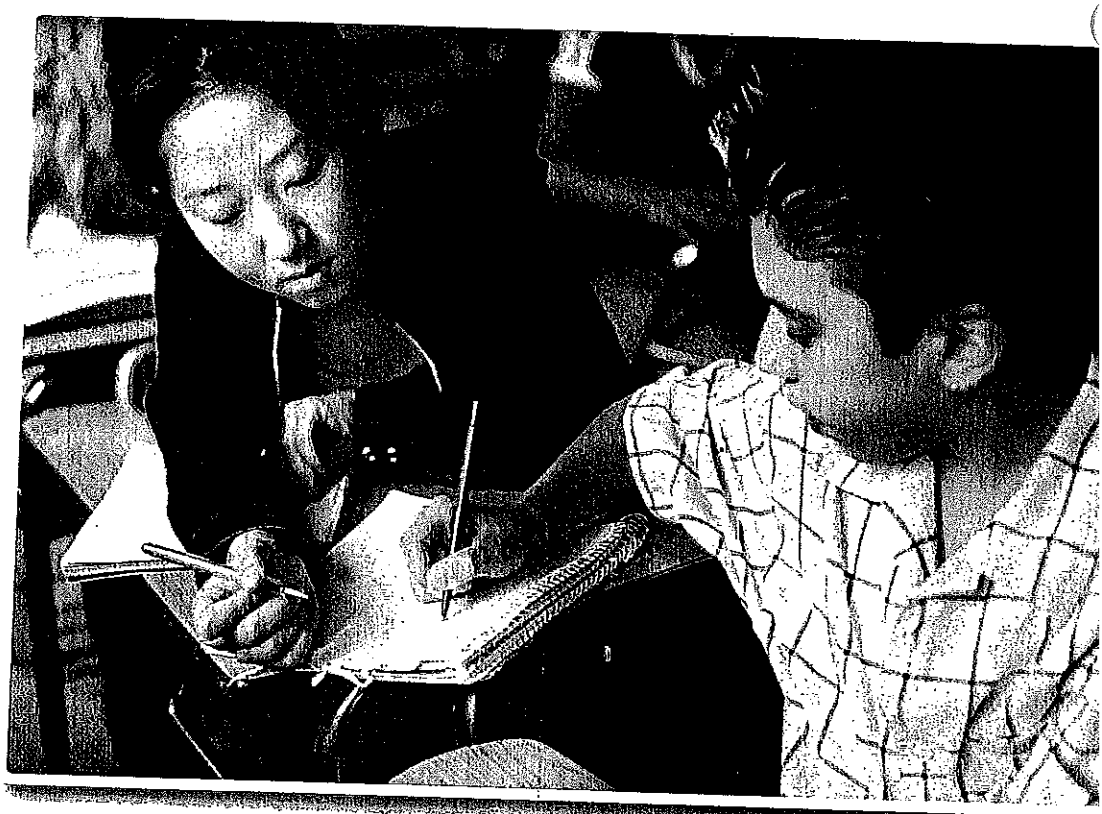
- How do you feel in the morning as you enter your school?
- What emotions do you experience throughout the day while teaching?
- What emotions do you experience when walking the hallways, when in the lunchroom, when grading, and when in the faculty room?
- Which students and colleagues evoke pleasant versus unpleasant emotions in you?
- How do you feel at the end of the school day?

Understanding Emotional Intelligence

Emotions give us information that can be valuable—if we use that information wisely. That's why it's important for schools not only to support students' and educators' social and emotional health, but also to teach all stakeholders—school leaders, teachers, staff, students, and families—the skills of emotional intelligence.

But what exactly is emotional intelligence? Can it even be taught?

Mayer and Salovey (1997) defined emotional intelligence as the ability to reason with and about emotions



to achieve goals and success in life. The key skills of emotional intelligence are recognizing, understanding, labeling, expressing, and regulating emotion (Brackett & Rivers, 2014).

The first skill, *recognizing emotion*, ensures that we obtain accurate and useful information from the environment. We can recognize emotions through facial expressions, vocal tones, body language, and even physiology (for example, our own heart rate). These emotions signal whether things are going well or poorly for ourselves and other people, and they also help us attend to our own and others' needs. Joy occurs when we achieve a goal; anger when we perceive injustice; disappointment when we have unmet expectations. In the classroom, our ability to accurately recognize emotions is key to connecting and engaging with our students.

Referring back to Jason, how could his social studies teacher recognize exactly what he was feeling when he crumpled up his assignment? On the surface, he appeared angry. But it's reasonable to think that he also felt disappointed or embarrassed. We need to know because the strategies we might use to help Jason manage his feelings would likely be different for anger than for disappointment. If Jason is angry, we might give him a safe space and strategy to help him de-escalate and later invite him to discuss his feelings and what he perceived as being unfair, followed by a discussion of expected classroom behavior. These strategies would also apply if Jason's main feeling was disappointment; but because disappointment generally results from unmet expectations, we might also want to inquire into how he prepared for the assignment and help him plan strategies he could use to do better next time.

Put simply, instead of playing the guessing game based on Jason's behavior, we need to clarify our understanding of what he's feeling. We can accomplish this by telling Jason what we observe in his facial expressions and body language and what we hear in his voice—and engaging him in a conversation that encourages him to share his feelings and experiences.

The second skill, *understanding emotions*, refers to recognizing how different emotions influence our thinking, decisions, and behavior. It's likely that the primary emotion Jason was feeling was disappointment because he didn't get the grade he expected. He also might have felt embarrassed when he was told to go to the principal's office and even fearful about the possible consequences of the principal's call home. Jason's understanding of the causes and consequences of his emotions would provide him with crucial information about how best to shift or to maintain his emotions and behave in an appropriate manner.

When we, as teachers, understand the causes and consequences of our own and our students' emotions, we can provide greater insights to our students. We can also teach more mindfully and differentiate our instruction depending on where our students are emotionally and where we want them to be. For example, we might create the conditions for excitement when we want students to generate ideas about a topic for a paper; help them tap into feelings of anger when their task is to write a persuasive essay; induce a sad mood when they prepare to write a moving poem; and cultivate a calm, relaxed state for private journal writing.

Most people have difficulty finding the **exact word to describe their feelings.**

Labeling emotions, the third skill of emotional intelligence, includes having a diverse vocabulary to describe the full range of emotions, from basic ones like fear to complex ones like shame. It also includes the ability to differentiate emotions according to intensity. For example, emotions like contentment, joy, delight, exhilaration, elation, and ecstasy exist in the happiness family, whereas impatience, annoyance, irritation, frustration, aggravation, and rage exist in the anger family.

Most people have difficulty finding the exact word to describe their feelings. One way to expand our own and our students' emotion vocabulary is to teach words that describe various intensities of emotions from different emotion families (for example, *happiness* and *anger*). It's also important to examine how these emotions are shown and what causes people to experience them. Referring back to Jason, if he had a more sophisticated emotion vocabulary, he might have been able to articulate that he was anxious and confused during math class and possibly ask for help.

The fourth skill of emotional intelligence is *expressing emotions*. This skill pertains to one's ability to communicate emotions effectively with different people and in multiple contexts. How we express our emotions depends on our personality (for example, whether we are an introvert or extrovert); our level of comfort with different emotions; our social norms; and larger cultural or religious rules around when, where, and with whom we express emotions. (For example, the acceptance of direct eye contact and public display of affection vary by culture.)

Because educators and students alike have different rules and comfort levels around expressing emotions, students may mask or hide their true feelings. Jason's substitute Spanish teacher thought he was being disrespectful by not looking her in the eye; however, without knowing Jason's cultural background and past experiences, it's hard to know whether he was being disrespectful or deferential to authority. The more we know our students—from their personality to their cultural background—the better we can work with them on effective ways to express their emotions in school.

Regulating emotions, the fifth skill of emotional intelligence, involves strategies to prevent or reduce unwanted emotions and to maintain, initiate, or enhance desired ones. Many of us use unproductive strategies automatically, including negative self-talk (I'm a loser; I'm stupid); blaming others; or yelling. More effective strategies include positive self-talk (I can do this; I'm going to take the high road); positive reappraisal (for example, taking the other person's perspective); social support; and exercise. As educators, it's important to notice our own unintentional, potentially unproductive strategies and to develop effective ones so that we can be good role models for our students.

Jason uses a range of strategies. Some of them (such as procrastination, negative self-talk, and aggression) don't help him achieve his goals; others (such as journaling) are helpful. Our hope is for schools to provide opportunities from preschool to high school for all students to learn effective strategies to regulate their feelings.

Creating Emotionally Intelligent Schools

Research shows that emotional intelligence is associated with a wide range

of positive outcomes among children and adolescents, including improved cognitive and social functioning, psychological well-being, and higher academic performance. Emotional intelligence is also associated with less stress and burnout and greater job satisfaction among educators. Our own observational studies have shown that classrooms rated higher in emotional intelligence have students who are more engaged, behave in more prosocial ways, and learn better (for a review of this research, see Brackett, Rivers, Bertoli, & Salovey, in press). Additional research shows that emotional intelligence can be taught and developed in schools (Brackett & Rivers, 2014; Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011).

Despite this evidence, however, U.S. schools have not devoted much attention to emotional intelligence, more broadly called social and emotional learning (SEL) (Durlak, Gullotta, Domitrovich, Goren, & Weissberg, 2015). In many ways, the strong emphasis on standardized testing and teacher accountability has pushed aside the emotions of students and educators.

Still, a large number of parents, researchers, educators, and policymakers are pushing for schools to take SEL seriously. More districts are adopting evidence-based approaches to SEL; schools of education are starting to integrate training in the area, and policies to mandate and fund SEL are being considered, including two pending federal bills: the Academic, Social, and Emotional Learning Act (HR 850) and the Jesse Lewis Empowering Educator Act (S 897).

Consider how Jason's life and millions of other children's lives might improve if they learned to recognize, understand, label, express, and regulate emotions. Consider how teacher and leader stress and burnout might be reduced if educators developed these same skills. It's time to ensure that all educators and children develop the necessary emotional skills to reach their full potential in school, at home, and in their communities. EL

Are You an Emotionally Intelligent Educator?

Ask yourself the following questions:

- *Recognizing emotion.* How often do you pay attention to your own and your students' emotions? What do you do to teach your students to accurately recognize emotions in the face, body, and voice?
- *Understanding emotion.* Are you aware of your emotional triggers? What makes you feel angry, worried, or joyful at school? How do you help your students understand the causes and consequences of their emotions?
- *Labeling emotion.* How sophisticated is your emotion vocabulary? How do you infuse emotion vocabulary into your teaching?
- *Expressing emotion.* Are you comfortable expressing the full range of emotions—including happiness, sadness, anger, and calmness—with your students? What do you do to ensure that your students learn about cultural differences in the display of emotions?
- *Regulating emotion.* Which ineffective and effective strategies do you use to regulate your feelings? How often do you teach your students helpful strategies to regulate emotions such as stress so that they can achieve their goals?

References

Brackett, M. A., Floman, J., Ashton-James, C., Cherraskiy, L., & Salovey, P. (2013). The influence of teacher emotion on grading practices: A preliminary look at the evaluation of student writing. *Teachers and Teaching: Theory and Practice, 19,* 634–646.

Brackett, M. A., & Rivers, S. E. (2014). Transforming students' lives with social and emotional learning. In R. Pekrun & L. Linnenbrink-Garcia (Eds.), *International handbook of emotions in education* (pp. 368–388). New York: Taylor and Francis.

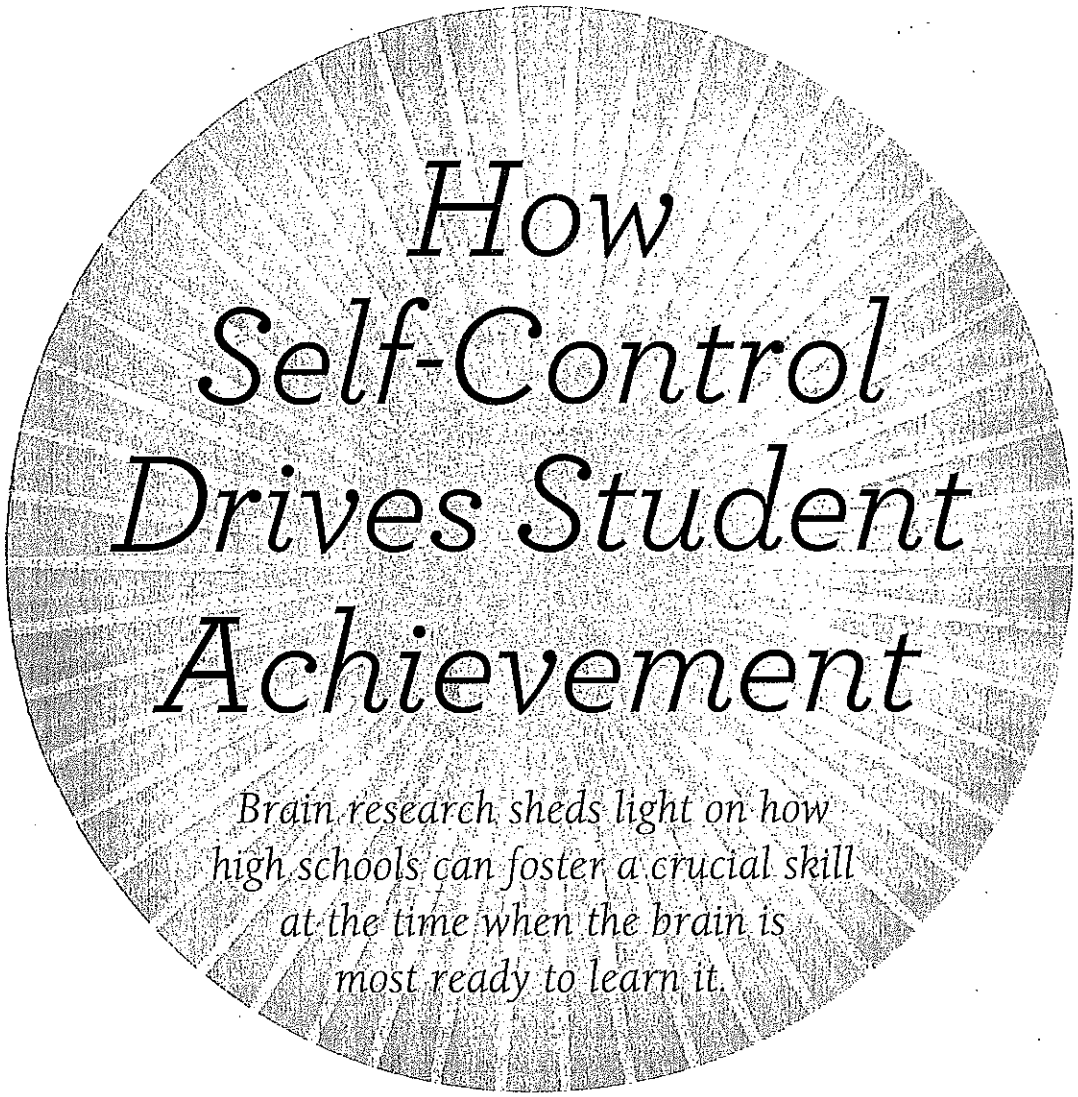
Brackett, M. A., Rivers, S. E., Bertoli, M. C., & Salovey, P. (in press). Emotional intelligence. In L. Feldman Barrett, M. Lewis, & J. Haviland-Jones (Eds.), *Handbook of emotions* (4th ed.). New York: Guilford Press.

Durlak, J., Gullotta, T., Domitrovich, C., Goren, P., & Weissberg, R. (Eds.). (2015). *Handbook of social and emotional learning.* New York: Guilford Press.

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development, 82,* 405–432.

Mayer, J. D., & Salovey, P. (1997). What is emotional intelligence? In P. Salovey & D. J. Sluyter (Eds.), *Emotional development and emotional intelligence: Educational implications* (pp. 3–34). New York: Basic Books.

Marc A. Brackett (marc.brackett@yale.edu) is director of the Yale Center for Emotional Intelligence (http://ei.yale.edu) in New Haven, Connecticut. **Dena Simmons** (dena.simmons@yale.edu) is the center's director of school initiatives.



How Self-Control Drives Student Achievement

Brain research sheds light on how high schools can foster a crucial skill at the time when the brain is most ready to learn it.

Laurence Steinberg

We've known for some time that the brain is particularly malleable during the first few years of life, which has prompted renewed interest in the importance of early childhood education. However, brain science now reveals that a second period of heightened plasticity occurs during adolescence, a time when the brain is especially prone to change (Lillard & Erisir, 2011). This finding should stimulate interest in secondary education as an opportune time to intervene to improve students' lives.

Among experts in developmental psychology, there's new interest in noncognitive skills as important influences on adolescents' learning and academic achievement (Tough, 2012). In particular, self-regulation—the ability to exercise control over our feelings, thoughts, and behavior—turns out to be a stronger predictor of success in the classroom than intelligence, talent, or standardized test scores. That's because strong self-control is the main contributor to traits like perseverance, determination, and grit, all of which have been linked to higher school achievement as well as to success in the world of work.

Within the field of positive psychology, interest is growing in how schools can facilitate adolescents' emotional growth, including the development of stronger self-control (Steinberg, 2014). Of course, the more traditional focus in school on the prevention and amelioration of emotional problems is still valid—adolescence is the most likely period for the emergence of serious mental health issues, such as depression or substance abuse. But we should also be asking what schools can do to stimulate *positive* emotional development during this stage, both for its own

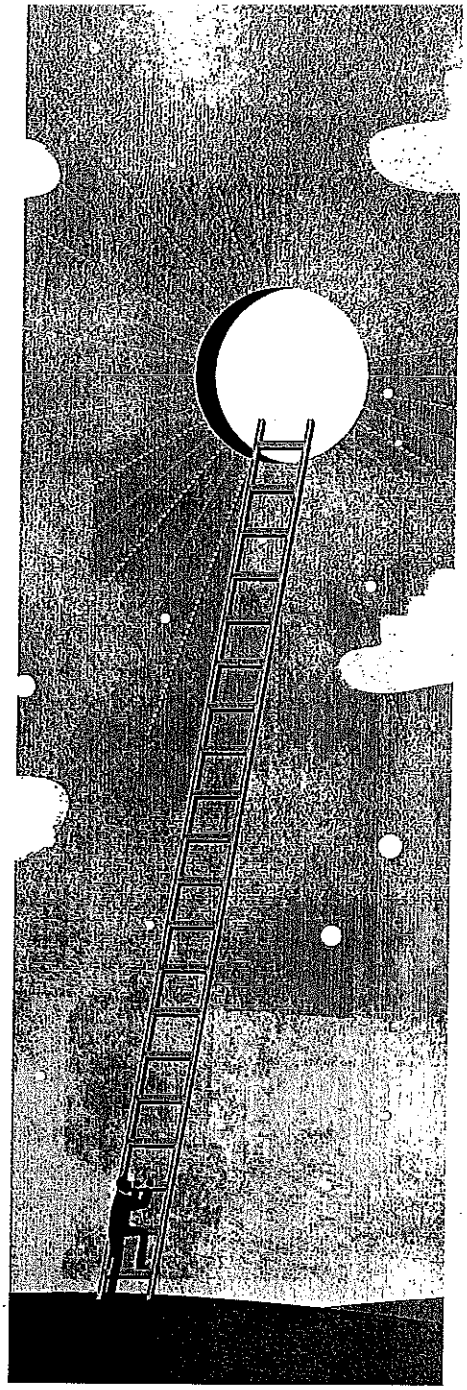
;ake and because research shows that :chool achievement depends a lot on notivation and not just on conven- ional academic abilities.

ligh Schools: Jot Making the Grade

Ve've known for some time that U.S. igh schools are underperforming, but ttle that we've tried with respect to urriculum or instruction has worked articularly well. Reading and math cores on the National Assessment of ducational Progress (NAEP) have emained flat among U.S. 17-year-olds or the past 40 years, whereas NAEP cores among our younger students ave risen over this same time period. 1 recent NAEP assessments, only 6 ercent of 17-year-olds score at the ighest level of reading proficiency r their age, and just 7 percent of 7-year-olds score at the highest level proficiency in math. Far more ele- entary and middle school students ore at the highest proficiency levels an do their high school counterparts Jational Center for Education Sta- stics, 2013).

The problem may be that for all at the very best students—the ones ound for the most selective colleges id universities—high school can feel dious and unchallenging. One-third U.S. high school students report at they have little interest in school d get through the day by fooling ound with their friends (Steinberg, 96).

One might be tempted to write off ese findings as mere confirmation of e well-known fact that adolescents d *everything* boring. However, more an 80 percent of foreign students io have attended U.S. high schools ort that their home schools are re challenging, and more than 50 rcent of U.S. high school students io have studied in another country



agree that their home schools are easier (Loveless, 2002, 2006). Despite all the media attention given to how stressed-out adolescents are, U.S. high school students spend far less time on schoolwork than their counterparts in the rest of the world do.

Enter Self-Control

The fact is, U.S. high school students may not be up to the challenge because they lag behind many of their international counterparts in an important skill—self-control. Students who have strong self-restraint and the capacity to delay gratification have a greater advantage in high school than they do in elementary school. A child doesn't need much perseverance to succeed in 2nd grade. In other words, it's easier to improve elementary schools without paying attention to noncognitive skills. We don't have this luxury in high schools.

As students progress from elementary to middle to high school, the work becomes more challenging, and the demands for self-reliance intensify. Adults provide less supervision and assistance, and students are expected to work more independently. High school assignments take longer to complete, and exams take longer to study for. If we want to improve our adolescents' achievement, we're going to have to rethink secondary education so that it's more geared to strengthening the self-control that students need to be successful in school and beyond.

In a cross-national study I directed of nearly 4,000 adolescents from 11 countries, ranging from 5th graders to college undergraduates, we tested students' self-regulation abilities at different ages using behavioral tasks that required planning and self-control (such as the "Tower of London," in which hasty decisions interfere with successful performance), as well as standard personality measures (such as those assessing impulsivity) (Steinberg & Chein, in press). The comparison between the results for Chinese and U.S. students is instructive. At 5th grade, there were few differences in self-control—the Chinese children scored only about 10 percent higher. But this gap widened little by little each year. By 9th grade, the Chinese students scored 20 percent higher; by college, they scored 45 percent higher. This advantage most likely isn't the result of cultural differences in temperament. If it had been, we would

have seen a larger self-control gap earlier on. Rather, it's likely a consequence of how each country raises and educates its adolescents.

What Schools Can Do

Research shows not only that adolescence is a time of considerable brain plasticity, but also that brain systems and regions that govern self-regulation are especially malleable during this time (Selemon, 2013). Given this knowledge, here are some ways that schools can strengthen student self-control and facilitate learning and achievement.

Make school more demanding for all students.
In its coverage of U.S. secondary education, the popular press tends to focus on two relatively small groups: students headed for elite colleges (many of whom are under tremendous stress and pressure) and students at risk for dropping out (many of whom come from the most disadvantaged communities).

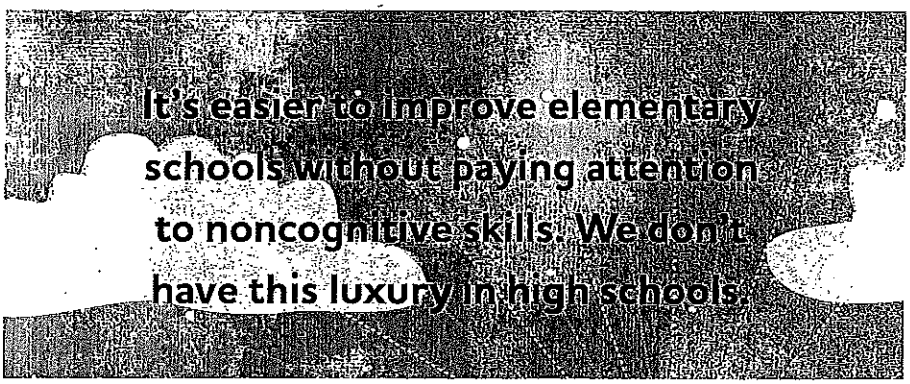
These stories are important to tell, but they leave out the vast majority of students, who don't fall into either of these extremes. These high school students tell us they're bored. Schools don't routinely push them beyond their current capabilities—that is, the students don't always get the sort of stimulation necessary to develop brain regions that support higher-order cognitive skills and self-regulation. And more instruction aimed at the rote memorization of facts won't help. Research shows that repeating the same task, without additional challenge built into the practice, does little to stimulate brain development. Brain development is stimulated by demanding more from the brain than had previously been asked (Hulme, Jones, & Abraham, 2013).

Attend to students' physical health.
Despite considerable research showing that aerobic exercise is one of the most important contributors to healthy brain development (Verburgh, Konigs, Scherder, & Oosterlaan, 2014), many school districts have eliminated physical education from their daily curriculums. In many high schools, the only students who get regular exercise are those who are talented enough to play on competitive interscholastic teams.

Given what we know about the importance of exercise for brain development, one hour of each school day should be devoted to physical education. This will likely raise students' test scores more than additional instruction will. As with academic stimulation, the type of physical exercise that students are asked to do matters. Team sports, because they're often demanding mentally (with respect to strategy); psychologically (with respect to cooperation and teamwork); and physically, may be especially beneficial. Team sports don't have to be interscholastic or limited to the most athletically able students to provide these benefits.

Bring in mindfulness programs.
There's growing evidence that mindfulness training stimulates the development of brain systems that support self-regulation and strengthen self-control (Davidson et al., 2012). A small number of schools around the United States have incorporated mindfulness exercises, such as meditation, into their daily routines, and preliminary evaluations of these efforts have shown improvements in student learning as well as reductions in problem behavior (Steinberg, 2014). Other ways of teaching mindfulness, including yoga, may also be beneficial.

At a time of shrinking school budgets, I realize that any call to add meditation and yoga to the high school curriculum won't be warmly embraced and may be ridiculed as extravagant. To this resistance I can only say that our persistently mediocre record of secondary school achievement, despite the relatively long school days we force our adolescents to endure, suggests there's plenty of room to rethink how students might spend that time more profitably.



Strengthen students' working memory.
There's some evidence that providing training on certain demanding cognitive tasks, especially those designed to strengthen working memory, may contribute to the development of other skills and capabilities, including self-control (Morrison & Chein, 2011). Working memory refers to how we retain information in our minds and

se it—like keeping the first part of a ong sentence in mind while you finish eading it so the end of the sentence akes sense, or holding a set of direc-ons in your head as you drive so you now what landmarks to look for. Vorking memory is essential to things ke planning ahead, considering mul-ple possible actions at the same time, comparing the short- and long-term nsequences of a potential decision.

One effective training exercise is e "*n*-back" task, in which students e presented with a sequence of items ke letters) one at a time and asked indicate whether the letter shown is e same as the letter that appeared *n* ters ago.

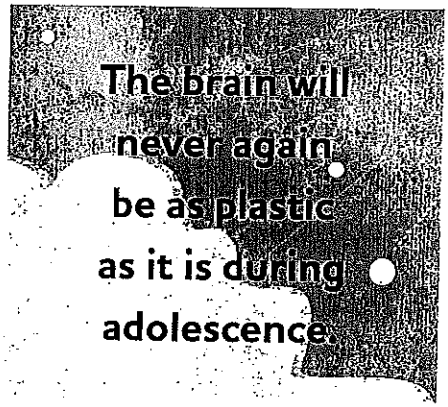
fer an SEL program.

ere's good evidence that social and otional learning (SEL) programs ntribute to the development of self-gulation, as long as they follow the FE principles (Durlak, Weissberg, mnicki, Taylor, & Schellinger, 11): They should be *sequenced, ive, focused, and explicit.*

Anyone interested in bringing FE SEL programs to their school uld consult the Collaborative for demic, Social, and Emotional rning (www.casel.org), a nonprofit anization that conducts systematic luations of SEL programs, as well he U.S. Department of Education's at Works Clearinghouse (http://ed.gov), which maintains lists of ool-based social and emotional ning programs with proven track rds of success. Although we tend ink of SEL programs as geared arily toward students with emo-al problems, like aggression, SEL grams benefit all students.

Last, Best Chance

ime for a new national conver-n about the health, development,



and academic success of our teenagers. But the conversation needs to be different from the one we've been having. It needs to apply the insights into adolescent brain development that have emerged over the past two decades.

We need a national focus on adolescence that is similar in magnitude to our focus on children from birth to age 3. Periods of heightened brain plasticity are times when our experiences are likely to have enduring effects. The first few years of life constitute one such period; we now know that adolescence is another.

The brain will never again be as plastic as it is during adolescence. We can't afford to squander this second opportunity to help young people be happier, healthier, and more successful. Adolescence is our last, best chance to make a difference. EL

References

Davidson, R., Dunne, J., Eccles, J., Engle, A., Greenberg, M., Jennings, P., Jha, et al. (2012). Contemplative practices and mental training: Prospects for American education. *Child Development Perspectives, 6*, 146–153.

Durlak, J., Weissberg, R., Dymnicki, A., Taylor, R., & Schellinger, K. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development, 82*, 405–432.

Hulme, S., Jones, O., & Abraham, W. (2013). Emerging roles of metaplasticity in behaviour and disease. *Trends in Neurosciences, 36*, 353–362.

Lillard, A., & Erisir, A. (2011). Old dogs learning new tricks: Neuroplasticity beyond the juvenile period. *Developmental Review, 31*, 207–239.

Loveless, T. (2002). *The 2002 Brown Center report on American education*. Washington, DC: Brookings.

Loveless, T. (2006). *The 2006 Brown Center report on American education*. Washington, DC: Brookings.

Morrison, A., & Chein, J. (2011). Does working memory training work? The promise and challenges of enhancing cognition by training working memory. *Psychonomic Bulletin and Review, 18*, 46–60.

National Center for Education Statistics. (2013). *The nation's report card*. Washington, DC: U.S. Department of Education.

Selemon, L. (2013). A role for synaptic plasticity in the adolescent development of executive function. *Translational Psychiatry, 3*, e238 and ff.

Steinberg, L. (1996). *Beyond the classroom: Why school reform has failed and what parents need to do*. New York: Simon and Schuster.

Steinberg, L. (2014). *Age of opportunity: Lessons from the new science of adolescence*. New York: Eamon Dolan/Houghton Mifflin Harcourt.

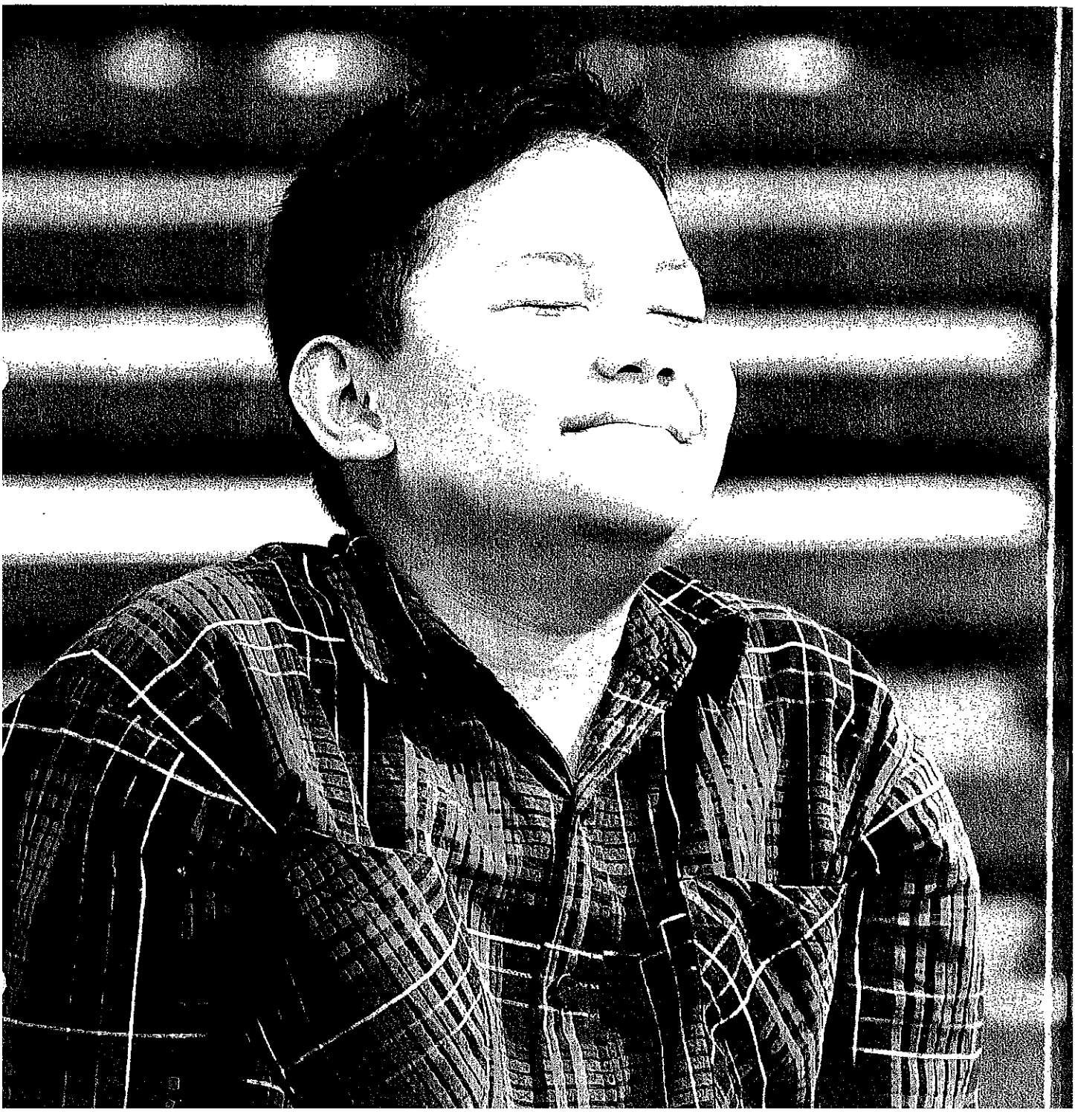
Steinberg, L., & Chein, J. (in press). A partial account of adolescent impulsivity. *Proceedings of the National Academy of Science*.

Tough, P. (2012). *How children succeed: Grit, curiosity, and the hidden power of character*. New York: Houghton Mifflin Harcourt.

Verburgh, L., Konigs, M., Scherder, E., & Oosterlaan, J. (2014). Physical exercise and executive functions in preadolescent children, adolescents and young adults: A meta-analysis. *British Journal of Sports Medicine, 48*, 973–979.

Laurence Steinberg (lds@temple.edu) is professor of psychology at Temple University. He is the author of *Age of Opportunity: Lessons from the New Science of Adolescence* (Eamon Dolan/Houghton Mifflin Harcourt, 2014), which offers more discussion of how to improve students' self-control. Follow him on Twitter @ldsteinberg.

The 5 Literacies of



Mindful Learning

When we show students how to be present and focused, they not only learn better, but they also live better.

Daniel Rechtschaffen and Taylor Rechtschaffen

When we ask educators and parents what they really want for kids, it's rare that their first choice is "to be proficient in algebra." What they most hope for is for their children to be successful, to be happy, and to live good and meaningful lives.

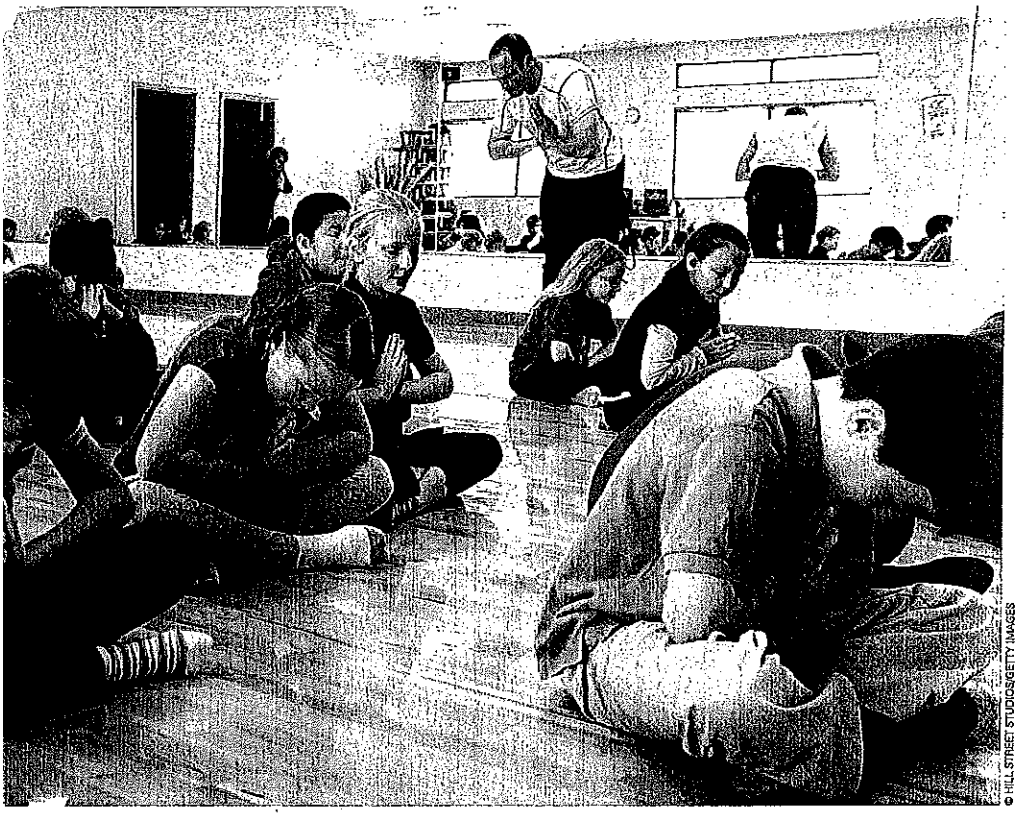
If we begin with the premise that we want to support our students' well-being, we'll likely teach in a very different way. We'll focus on helping students learn mindsets and approaches that are foundational for their healthy development, both for academic success and simply to be good people. Through approaches like mindfulness, we'll teach students to be "literate" in five key areas: their bodies, their minds, their hearts, their community, and the world around them.

This Is Your Brain on Mindfulness

Before we get into how to teach mindfulness, let's talk about what mindfulness is—and its benefits. To practice mindfulness means to orient yourself toward your present-moment experience with attention and compassion—to be with what is, as it is. Research is clear on the advantages of mindfulness for adults. Now studies are showing that when students practice mindfulness, their stress, depression, and anxiety decrease, while their impulse control, emotional regulation, happiness, and empathy increase (Schonert-Reichl et al., 2015).

Of course, it's great to help kids be happier, but you may be asking where this approach fits into an 8th grade math class. Amazingly, research indicates that mindfulness and social-emotional learning are profound drivers in academic success. A 2013 study found that mindfulness practice helped students raise their reading comprehension test scores 16 percent as well as build their working memory and limit their distracting thoughts (Mrazek et al., 2013). The Collaborative for Academic and Social Emotional Learning, working with eight major U.S. school districts, found that its interventions helped raise academic scores by 11 percent. It's not that mindfulness helps students memorize math tables. Such academic achievements are the result of practices that boost self-awareness, focus attention, and reduce stress (Durlak et al., 2011).

Many teachers hesitate to give time to mindfulness or social-emotional learning because our schedules are already overflowing. But these modalities aren't some intervention hoisted onto an already overburdened day; they're foundational ways of being that can be taught through short practice sessions. When we teach students the art of attention, they build executive functioning to maintain focus on the task at hand. Teachers don't need to wrestle the class back to a topic again and again. Most teachers incorporating mindfulness in their classrooms get much more done because their students are present—really present—emotionally regulated, and ready to learn.


© HILL STREET STUDIOS/GETTY IMAGES

Five Literacies

Any educator can use fun and accessible practices to foster a school environment where students' well-being is a top priority. Instead of always telling students to pay attention, we can guide them to "play attention" or teach them breathing techniques that help them manage their emotions when flooded with intense feelings. Let's look at five areas of awareness and some practices that strengthen each area.

Somatic Literacy

Anyone who teaches knows that even if students are physically in the room, that doesn't mean they're "present" and attentive. For students to learn, they have to feel present in their bodies. Students are often hyperaroused—with so much energy they're popping out of their seats—or hypoaroused—so spaced out that we have to spend the whole class trying to draw their attention back to the subject at hand.

Some students live with trauma or come from unsafe living situations. These kids have natural defense mechanisms that put their bodies and nerves on high alert—and that high-stakes testing only exacerbates. Our executive functioning gets hijacked by stress and trauma, shutting down when tested or pushed. Whether in a privileged or a low-income school, all students have their own stressors and need to learn how to regulate their nervous systems. So we begin mindfulness training by helping students land in their bodies and feel comfortable and safe in their skins.

Educators so often tell students to calm down or stop fidgeting. But how often do we show them practices that help them truly settle? Engaging movement practices, relaxation techniques, and other strategies can help all kids get their bodies and systems ready to learn.

Try This: Have students deliberately tighten their fists, faces, and their entire bodies while they inhale, then fully relax as they exhale. After practicing this a few times, ask them to stop tightening up but to notice if there is any extra tension any place in their bodies. Draw their attention to that place as they inhale, then tell them to let all the tension go from there with a few relaxing exhales. Have students describe their physical sensations as they do these exercises, helping them develop a literacy of the body.

Cognitive Literacy

Once students are somatically present, work with attention, distraction, and thought processes. Attention is a skill just as playing piano is. We'd never get upset with a student who played piano poorly if we had never taught the student how.

Help students build their attention muscles. Start by teaching kids to focus their attention on their breath, a particular spot on the wall, or anything happening in the present moment. Students learn to watch how their attention gets distracted by thoughts, sounds, and other stimuli. Each time they bring their attention back to the focus they've chosen, they build their muscles of attention and strengthen their executive functioning.

Once students have built their attention muscles, they begin to become aware of how self-critical thoughts and judgments toward others—as well as self-compassionate and prosocial thoughts—surface in their minds. Teachers can help students realize when they are caught up in self-judging thought spirals and shift their awareness to self-compassion. It's like giving them instructions to operate a vehicle. But this vehicle is their mind, in which they can find balance and health.

Try This: We tell students that our

brains are like a popcorn maker—but instead of making popcorn, brains make thoughts. Have students put a hand on their stomachs and feel their breath as they inhale and exhale. Every time they notice they get distracted by a thought or sound in the room, they pop up their hand. Then they bring the hand back to the stomach and their focus back to their breath, building their attention muscles.

Emotional Literacy

Emotions can be a sticky business. One 4th grade student told us that when she feels nervous, it's like there's bubble gum stuck in her hair. Anxiety, sadness, anger, and even joy or curiosity can be overwhelming, especially when you're expected to sit still and follow directions for hours. What's a student supposed to do when he or she becomes filled with sadness or anger in the middle of class?

Once they've learned to feel comfortable in their bodies and have built the muscles of attention, students can learn the language of emotions. Many schools tell students to take three deep breaths when they're angry—but mindfulness practices go beyond that. We invite students to mentally observe their ruminating thoughts or strong emotions and then to actually feel the correlating physical sensations in their bodies.

Students learn what emotions feel like physically and how emotions are connected to their thoughts. With this inner knowledge, they start to develop impulse control and emotional regulation. They become aware of their thoughts as independent from the impulse to act on them. Slowly, through mindfulness practice, they put a lag time between emotion, thought, and action, which greatly improves their success. They learn to name their emotions and—instead of automatically reacting—use strategies to find balance. Students also develop empathy, gratitude, and joy. Research shows that when students practice mindfulness, their dysregulation reduces and their well-being rises (Flook, Goldberg, Pinger, & Davidson, 2015).

Try This: Have students picture in their minds a time when they were frustrated. (It's better to probe for a time they felt "a little frustrated" rather than sad or angry, because remembering stronger emotions might lead a child to call up a traumatic memory.) Guide students to notice what their bodies feel like when they're picturing something frustrating. Then have them inhale, noticing where the stress is in their bodies as they remember the frustration and, on each exhale, relax their body, loosening that place of stress.

This practice is a training ground. A student who gets comfortable doing this will have better mental resources to regulate himself or herself in emotionally stressed times at school. When a conflict arises or students are overwhelmed with emotion, remind them to check into their bodies, feel where the tension is, and regulate themselves with each exhale. We can bring this practice into our classrooms before tests, after transitions, or during other events that may bring on a flurry of feelings.

Social Literacy

Social-emotional literacy is dearly needed in our world, and certainly in schools. For instance, we visited one 6th grade classroom to lead mindfulness trainings. The teacher told us the group had been experiencing lots of exclusion and meanness among students. When we sat down with the students and invited them to each picture someone they really liked and say in their heads, "Just like me, this person wants to be happy," students found this easy and pleasant. But when asked to do the same thing picturing a person who annoyed them, most said it wasn't easy. Students had amazing explanations of how their hearts literally tightened up as they tried, not wanting to open to this person. We then suggested they each imagine the person they were annoyed with winning an award and see whether they could feel excited for them. One student said, "Wow, I didn't realize I could do that. I felt good for him even though I don't like him. That was weird."

Attention is a skill just as playing the piano is. We'd never get upset with a student who played piano poorly if we never taught the student how.

Through such practices, we can teach kids the inner mechanisms for forgiveness, acceptance, and kindness. When we bring mindfulness into social interactions, it opens our eyes to really understanding others and our impact on them. Kids face so much bullying and social friction, and rarely do we teach them how to understand the roots of such friction. Using mindfulness, with some guidance, students begin to inquire into themselves, asking questions like, *Why do I include some people and exclude others? Why do I judge? Why can't I just accept those who are outside my realm of understanding?*

Try This: Sit with students in a circle and settle into your mindfulness practice, then have each student mentally check in to identify how he or she feels right now. Then, play Flow and Tell. Around the circle, each student says what he or she is aware of in the present moment. Gently tell students

not to talk about what happened in the past or what will happen in the future, but just name what they're experiencing right now—what they feel, hear, see, or what emotions they notice. This practice offers students an experience of community authenticity.

Ecological Literacy

We tell our students to be good stewards of the earth, but this can seem like an abstract idea if we don't give them ways to feel their place in the greater ecosystems. An effective mindfulness practice begins with self-awareness, extends out to understanding others and our community, and eventually opens awareness to larger systems and the natural world. It helps students understand that they aren't the center of the universe, that they have a responsibility to make their world a healthier place for all.

Ecological literacy can be practiced by going into nature and experiencing the elements that living creatures rely on to live. Or students can sit in their classrooms looking at a pencil and discuss together where elements in it come from. Students can eventually extend their kindness and attention to all things; they can learn how the world affects them and how their actions affect the world. Through understanding interconnectedness, we empower students to be mindful ambassadors in the world.

Try This: Invite students to understand our interconnectedness. Offer a raisin, tangerine, or other small natural food. Give kids an opportunity to slow their eating down so they can be mindful of the taste and the sensory experience. Then ask, Where do you think this food came from? Through exploring this question, students will learn how rain, soil, sun, and other natural forces were needed to grow this food. They'll build understanding about the farmers, truckers, and other workers who labor to feed people.

Don't Forget the Adults

In a sense, by exploring how to help students develop mindfulness, we've gotten ahead of ourselves. Adults need stress relief, well-being, focused attention, and the other benefits of mindfulness as much as or more than students do. So when we integrate mindfulness into a school, we begin with the adults.

We saw the importance of this when a principal called us the day before a professional development training to say that this might not be the best day because assessments were due and all teachers were on edge. We replied there could be no better day for mindfulness training. The group of teachers and administrators spent much of that training naming their stress, identifying what stress felt like, and using the methods described here to regulate their emotions, work with ruminating thoughts, and find balance amid the storm. This helped prevent stress from creating a toxic working environment and helped faculty remain present to themselves and their community.

Teaching mindfulness is easier when adults embody compassionate presence. We know it doesn't work to yell at students to be calm; punish them so they'll be kind; or simply tell them to be relaxed, focused, and empathetic. If it worked to tell kids how we want them to be, the world would have no problems: Didn't our kindergarten teachers tell us again and again to think of others and do the right thing? We've all heard ethical lessons—but something keeps us from acting on them.

Mindfulness can be a pathway to being the human beings we want to be. First we can cultivate our own attention, self-awareness, and compassion. Then we can help students do so. Yes, we hope this will bring them academic success. But more than that, we believe it will make the world a better place. EL

Most **teachers incorporating mindfulness** in their classrooms tell us they **get more done.**

References

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development, 82*(1), 405–432.

Flook, L., Goldberg, S. B., Pinger, L., & Davidson, R. J. (2015). Promoting prosocial behavior and self-regulatory skills in preschool children through a mindfulness-based kindness curriculum. *Developmental Psychology, 51*(1), 44–51.

Mrazek, M., Franklin, M., Tarchin-Phillips, D., Baird, B., & Schooler, J. (2013). Mindfulness training improves working memory capacity and GRE performance while reducing mind wandering. *Psychological Science, 24*(5), 776–781.

Schonert-Reichl, K. A., Oberle, E., Lawlor, M. S., Abbott, D., Thomson, K., Oberlander, T. F., & Diamond, A. (2015). Enhancing cognitive and social-emotional development through a simple-to-administer mindfulness-based school program for elementary school children: A randomized controlled trial. *Developmental Psychology, 51*(1), 52–66.

Daniel Rechtschaffen (djrechtschaffen@yahoo.com) is a marriage and family therapist who leads trainings for schools and organizations. He is the author of *The Way of Mindful Education: Cultivating Well-Being in Teachers and Students* (Norton, 2014). **Taylor Rechtschaffen** (taylorspirit@gmail.com) coleads mindful education teacher trainings at Omega Institute and Esalen Institute.

Being Human

The combination of a good mind and heart is key for developing emotionally healthy kids—and teachers.

Carol Ann Tomlinson

I may have known a few things about what it means to teach well when I first entered the classroom as a teacher. Most of those inklings were gifts from a few teachers who shaped my young life in profound and positive ways. Over time, my students clarified and extended those early stirrings. Time itself, a bit of maturity, and an inclination to be reflective further refined my sense that teaching allows us to be much more than dispensers of knowledge.

Teaching is the rare profession that allows its practitioners to model a world that dignifies—lifts up—all its members. It became important to me, then, to create a classroom where my students and I learn together to be more fully human. As is the case with all humans, I fall woefully short of that aspiration more times than not, but pursuit of that intention has made me a stronger person and a better teacher.

For years, my sense of what I meant by being more fully human was amorphous. Geoff, a student I taught for three years in middle school, helped me organize my reflections when he wrote on an application for a summer program that he had been given the gift of a good mind and felt a responsibility to develop a good heart to go with it. That, I think, is the real calling of a teacher—to model and encourage students to develop good minds and good hearts. Certainly helping young people develop good hearts and good minds is key to developing emotionally healthy kids. And developing emotionally healthy kids should be high on the list of essential teaching goals.

There's no "right" definition of what it means to develop a good mind or a good heart. Clearly, they are interdependent, as Geoff understood. To become more fully human is to value and be good stewards of both. A teacher plays a dual role in cultivating them: both modeling them and teaching them.

Developing a Good Mind

We tend to think about teachers as developers of minds—or at least I think we ought to. We are better guides for young people when our work helps them *build* their minds rather than *stuff* them. Achieving that end is different from covering content, ticking off a list of standards, or preparing for tests.

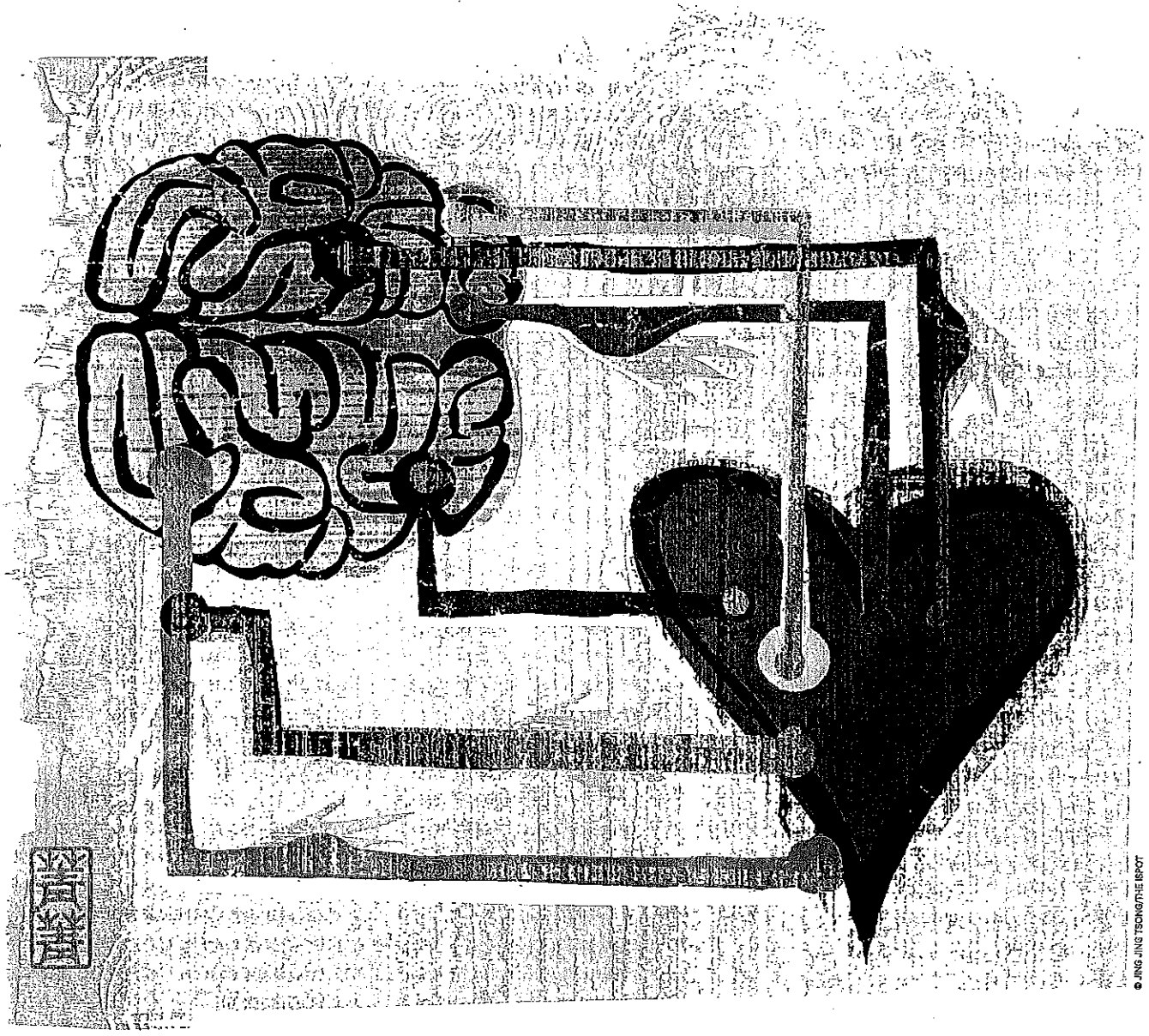
Toward that end, I'd like to get better and better at commending and living out at least four propositions. This list of propositions is in no way exhaustive. Add your own propositions to the list, or recraft the ones offered here.

Proposition 1. Learning should nearly always be satisfying—and often exhilarating.

Learning is a defining feature of human beings. It's how we grow into what we can be. We have the capacity to develop our brains and, in so doing, to better our lives. To model this proposition, I need to understand that although learning is not by any means confined to school, it's what school is for.

There's nothing more electric than having an insight, so I'd better be invested in creating learning that provides consistent "electric moments" and the satisfaction that follows a good mental stretch. I need to share with students my own joy in learning—both my learning and theirs. Conversely, I need to avoid reducing learning to that which is rote, flat, purposeless, or perfunctory.

in the Classroom



My students hear every message I send—whether overt or implied—**about their capacity to learn** and succeed.

roposition 2. Making meaning f the world around us is entral to learning.

he human brain is a meaning-making ıechanism, seeking patterns to inform ıd protect us. I need to encourage ıy students to figure things out, ask ɔod questions, and find reliable ıformation from which to construct ıswers. I need to push them to speak, rite, and act on the basis of trust-orthy information, evidence, and :ason.

To model the proposition, I need be a reasoning human being and to ıare my reasoning with my students. hey need to see me seek deeper ıderstanding of what I teach and why matters. I need to invite students to :plore their understanding with me ıd with one another. And I need to sist confronting them with so much formation that there's no time to ake sense of it.

:oposition 3. Working hard ıd working wisely are the ıcrets to mastery.

s a scandalous fiction that only a latively few people can be successful. ɔgged and informed persistence is e ticket to success in most domains human endeavor. Human history laden with accounts of people who :re told they'd never succeed at mething and who made their nay-yers look foolish by persisting to hieve their goals.

I need to be an exemplar of devoted ort, unafraid to say to my students, /hat we did today didn't work. I'll back with a better plan tomorrow." is helps students see what genuine ort looks like and helps them adopt : habits of mind and work that are ɔst often precursors of success. I ıst also stand against the insidious inclination to see young people as smart or not smart, understanding that my students hear every message I send—whether overt or implied—about their capacity to learn and succeed.

Proposition 4. All humans have the ability to be creative.

To be creative is to find a better way, to improve one's corner of the world. We become more fully actualized as we become more creative. We also expand our opportunities to become more productive.

I need to model the attributes of creativity—flexibility, originality, a problem-solving orientation, intellectual risk-taking, tolerance for ambiguity, a belief that mistakes are catalysts for growth, a willingness to play with ideas, and the ability to take pleasure in my own work. I need to call on my students to be divergent thinkers at least as often as I call on them to be convergent thinkers.

Developing a Good Heart

My student Geoff understood that a keen mind without a generous heart can easily become a guided missile gone awry. Goodness of spirit magnifies the positive power of a good mind. Teachers often spend more time with our students than do any other adults in their lives, giving us remarkable opportunity to help young people see, reflect on, and enact attitudes and behaviors that lead to good hearts. The following four propositions can point us in that direction.

Proposition 1. Kindness is the air and water that humans need to thrive.

Being unkind hurts, stunts, and ultimately destroys pieces of the person to whom we were unkind. I need to ask my students to look for the best in their peers, to listen in order to understand others' perspectives and see their humanity, and to see themselves in others and others in themselves. This means asking them to be kind—especially to those who need it most. They need to say they're sorry when they hurt someone's feelings, even if they feel their viewpoint was right. Kindness does not require agreement with another person. Rather, it reflects our understanding of the value of another's life.

Of course, as a teacher I must also consistently speak, act, and react from a position of kindness. Our kindness and unkindness is present or absent in our faces, lesson designs, grading practices, responses to wrong answers and bad behavior, and all other aspects of classroom life. We need to strive to live with kindness at our core.

The classroom is a microcosm of the human family. **We all need to pitch in to make the classroom work for everyone** in it.

Proposition 2. We need to decide what we stand for and who we want to be.

Developing a good heart requires clarity of purpose and the discipline

of practice. We need to name the attributes that elevate us and build together a mental rubric to guide our growth in those areas. As a classroom of learners, let's decide who we want to be. What do we want to stand for? What will elevate us as a community or a team? How can we grow in ways that make each of us stronger?

Although my compass as a teacher does not dictate the compass students elect to follow, my ability to teach from my compass is essential. *Who* I am as a person and as a teacher and *how* I am to my students predicts much about the likelihood that we can, together, celebrate who we are, what we do, and how we have come to that point of fulfillment and gratification.

Proposition 3. We must strive to be good members of the human family.

The classroom is a microcosm of the human family. To make the classroom work for everyone in it, we all need to pitch in by taking responsibility for ourselves, dignifying one another, seeking to understand more than we seek to judge, competing with ourselves rather than with others, celebrating one another's victories, and, when possible, buffering one another's hurts. We should also treat materials with respect, clean up after ourselves, do our best work, and help one another grow. And when there's conflict, we need to seek reasonable compromises and work for peace.

As a teacher, I need to work with my students to be architects and nurturers of community in our classroom. How we live our days enhances the life of each member of our group and of the group as a whole, so we celebrate individual and group successes and learn how to work redemptively in the face of our differences and shortcomings. To that end, I need to muster patience and temperance in challenging moments—and ask for students' forgiveness and help when I cannot. I must attempt always to use my influence constructively and instructively.

Proposition 4. We make our own memories.

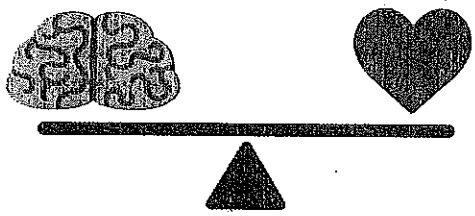
Our memories become more positive as we look for good things around us. We need to find time to do things we love doing. We might sing or giggle or be a little goofy sometimes. We are happier when we learn to appreciate small kindnesses. To see the bright side is not to be blind to difficulty, but rather to refuse to be hobbled by it.

When I teach, I try to share stories about happy and funny things that happen in my life and lead my students in laughter and silliness. I tell them about times I work with projects or causes that "swallow me" and help me find greater purpose, and I share examples of how I find good moments in the midst of difficult ones. To help my students make good memories, individually and as a group, I act as chief celebrant of the memories we all will share.

Strong Lives and Strong Resumés

It's regrettably easy for teaching to become a job we do to pay the rent and make it to retirement. It's similarly easy for "going to school" to become something a kid does for 13 (or more) years to make it to adulthood. It's possible, however, for a teacher to live in a way that makes both the teacher and his or her young charges more fully human.

This orientation does not diminish the role that academic learning plays in human development. Rather, it suggests that academic pursuits are rich contexts for developing good minds and hearts. Teachers who make and hold fast to that choice help their students construct strong lives as well as strong resumés.



A keen mind without a generous heart **can** easily **become a guided missile** gone awry.

Carol Ann Tomlinson (cat3y@virginia.edu) is William Clay Parrish Jr. Professor and Chair of Educational Leadership, Foundation, and Policy at the Curry School of Education, University of Virginia in Charlottesville. She is the author of *The Differentiated Classroom: Responding to the Needs of All Learners* (2nd ed., ASCD, 2014) and, with Tonya R. Moon, *Assessment and Student Success in a Differentiated Classroom* (ASCD, 2013).

INTEROFFICE MEMORANDUM

TO: ELLIOTT LANDON
SUPERINTENDENT

FROM: ELIO LONGO, JR.
DIRECTOR OF SCHOOL BUSINESS OPERATIONS

SUBJECT: MARCH 2016 QUARTERLY REPORT

DATE: APRIL 14, 2016

CC: F. MEILAN, BUDGET FILE

Attached is the March Quarterly Report (3Q) for the 2015-16 fiscal year which reflects a potential fund balance of $948,629 on June 30, 2016. The potential fund balance represents a 0.85% budget variation to the $111,171,756 Board of Education adopted 2015-2016 budget.

The projected positive fund balance can mainly be attributed to the cumulative savings in Salary accounts (Object codes 100-156); estimated at $801,091. The most notable savings resulted from the District's ability to meet its instructional objectives without having to hire additional staff (reserve teachers; $195,000), teachers on unpaid long-term unpaid and staff turnover savings.

You will note that we have completed 9 of the 12 months of the fiscal year with three months of expenditures left in the year. The differences between the "Adopted Budget" column and the "Adjusted Budget" column reflect the administrative transfers made within each "line item" of the budget as the year has progressed and specific expenditures have been modified. The "Estimated Adjustments" column reflects projected expenditures to June 30, 2016 that were not encumbered as of December 31; some indicative of market forces that have changed since the time the budget was prepared.

We encumber salaries for all full time employees and expenditures for anticipated purchases. Those encumbrances and expenditures account for 96.7% of the total budget. Actual expenditures made to date are 70.1% of total budget with encumbrances representing 26.6% of total budget. The remaining 2.5% of the budget projection represents my best estimate of unencumbered expenditures to be made during the three months remaining in the fiscal year.

Substitute and overtime costs projections (objects 150 – 156) indicate an overrun of $235,516; however, the projected surplus in certified salary accounts is directly correlated to the substitute accounts. Offsets are presently available in the projected salary accounts surplus.

As noted in the 2Q report the cost of heating fuel (natural gas & oil) and electricity remained uncertain as we were experiencing a mild start to the Winter heating season. The 3Q report covers the peak heating months and is a better predictor of fiscal year end utility balances. I am anticipating a $319,324 favor variance in Acct 414 Natural Gas due to the warmer than usual temperature and the severely depressed market environment. We have taken steps to mitigate FY17 volatility by purchasing electricity and leveraging via a consortium purchase (Towns and

BOEs). In the coming year both Town of Westport and Westport Public Schools will have synchronized contract expiry dates providing favorable purchasing economies.

Other Purchased Services (accounts 510 – 580) are projected to close out the fiscal year with a surplus in the amount of $368,893. The two main accounts contributing to the surplus are Acct 517 – Gasoline Buses and Acct 560 – Tuition Public. Similar to heating fuel savings (economic market conditions) we are experiencing a below three-year average spending rate on gasoline fuel for buses. Our Special Education out-of-district placements are trending inline with the previous two year actuals. State reimbursements on Excess Costs remain stable.

Listed below is a summary of the Line Item projected balances:

LINE ITEM	**PROJECTED BALANCE**
Total Salaries	$801,091
Total Benefits	(810)
Total Purchased Services	34,808
Total Property Services	17,448
Total Other Purchased Services	368,893
Total Supplies and Materials	-
Total Equipment	(287,191)
Total Other	14,390
Projected Balance (Deficit)	**$948,629**

I welcome the opportunity to review this projection with you.

WESTPORT PUBLIC SCHOOLS
Quarterly Financial Report - 3Q
March 31, 2016
Theoretical Expenditure Rate: 75%

2012-2013 Year-End Expense	2013-2014 Year-End Expense	2014-2015 Year-End Expense	Object Code	Descriptions	2015-2016 ADOPTED BUDGET	2015-2016 ADJUSTED BUDGET	BUDGET ADJUSTMENT	2015-2016 ENCUMBERED TO DATE	2015-2016 EXPENDED TO DATE	YTD %	ESTIMATED ADJUSTMENTS	PROJECTED TO EOY	BALANCE AVAILABLE	Balance Available %
30,715	35,116	35,646	615	Graduation Expenses	36,856	36,856	-	30,787	4,102	11%	1,967	36,856	-	0.0%
440,072	613,915	643,441	641	Textbooks	686,781	637,460	(49,321)	92,361	448,622	70%	101,477	637,460	-	0.0%
131,530	133,066	131,510	642	Library Books & Periodicals	123,969	123,176	(793)	21,972	71,517	58%	29,687	123,176	-	0.0%
9,870	19,820	14,615	643	A/V Materials	16,651	16,451	(200)	1,070	11,549	70%	3,832	16,451	-	0.0%
151,863	163,114	155,371	690	Non Instructional Supplies	174,936	173,503	(1,433)	38,379	102,447	59%	32,677	173,503	-	0.0%
18,212	22,036	29,089	691	Health Supplies	29,550	29,049	(501)	6,291	12,075	42%	10,683	29,049	-	0.0%
2,247,319	$ 2,599,027	$ 2,805,908		TOTAL SUPPLIES AND MTLS.	$ 2,720,464	$ 2,720,464	$ -	$ 336,558	$ 2,070,312		$ 313,594	$ 2,720,464	$ -	0.0%
100.0%	115.7%	108.0%			97.0%	97.0%		*12.4%*	*76.1%*		*11.5%*	*100.0%*	*0.0%*	
54,028	76,315	61,690	731	Equip-New Instructional	60,756	69,296	8,540	24,891	57,176	83%	33,029	115,096	(45,800)	-66.1%
36,968	27,289	51,772	732	Equip-New Non Instructional	157,933	147,481	(10,452)	120,323	159,664	108%	9,641	289,628	(142,147)	-96.4%
10,064	16,846	26,393	733	Equip-Replace Instructional	60,548	60,920	372	38,790	56,175	92%	9,637	104,602	(43,682)	-71.7%
29,078	21,135	8,507	734	Equip-Replace Non Instructional	46,306	45,848	(458)	35,775	46,847	102%	17,373	99,995	(54,147)	-118.1%
35,763	72,157	105,493	735	Furniture	91,654	97,652	5,998	27,384	72,613	74%		99,997	(2,345)	-2.4%
994,903	1,022,553	1,037,198	736	Tech Equip-Instructional	1,040,595	1,034,758	(5,837)	134,760	693,484	67%	206,514	1,034,758	-	0.0%
56,948	37,786	26,729	737	Tech Equip-Non Instructional	16,783	18,620	1,837	-	17,690	95%		17,690	930	5.0%
1,217,753	$ 1,274,081	$ 1,317,782		TOTAL EQUIPMENT	$ 1,474,575	$ 1,474,575	$ -	$ 381,923	$ 1,103,649		$ 276,194	$ 1,761,766	$ (287,191)	-19.5%
100.0%	104.6%	103.4%			111.9%	111.9%		*25.9%*	*74.8%*		*18.7%*	*119.5%*	*-19.5%*	
75,492	73,027	77,075	810	Dues & Fees	87,000	87,110	110	3,202	77,368	89%		80,570	6,540	7.5%
21,517	26,737	27,254	811	Student Act & Awards	30,628	30,518	(110)	6,006	19,589	64%		25,595	4,923	16.1%
366,537	384,648	399,528	812	Student Athletics	392,200	392,200	-	126,550	262,723	67%		389,273	2,927	0.7%
463,546	$ 484,412	$ 503,857		TOTAL OTHER	$ 509,828	$ 509,828	$ -	$ 135,758	$ 359,680		$ -	$ 495,438	$ 14,390	2.8%
100.0%	104.5%	104.0%			101.2%	101.2%		*26.6%*	*70.5%*		*0.0%*	*97.2%*	*2.8%*	
100,226,554	$ 103,997,089	$ 108,979,222		GRAND TOTAL	$ 111,171,756	$ 111,171,756	$ -	$ 29,526,007	$ 77,923,970		$ 2,773,152	$ 110,223,129	$ 948,629	0.9%
100.0%	103.8%	104.8%			102.0%	102.0%		*26.6%*	*70.1%*		*2.5%*	*99.15%*	*0.85%*	

WESTPORT PUBLIC SCHOOLS
Quarterly Financial Report - 3Q
March 31, 2016
Theoretical Expenditure Rate: 75%

2012-2013 Year-End Expense	2013-2014 Year-End Expense	2014-2015 Year-End Expense	Object Code	Descriptions	2015-2016 ADOPTED BUDGET	2015-2016 ADJUSTED BUDGET	BUDGET ADJUSTMENT	2015-2016 ENCUMBERED TO DATE	2015-2016 EXPENDED TO DATE	YTD %	ESTIMATED ADJUSTMENTS	PROJECTED TO EOY	BALANCE AVAILABLE	Balance Available %
197,421	161,474	185,375	432	Grounds Maintenance	309,040	267,757	(41,283)	$ 40,750	$ 140,634	53%	86,378	267,757	-	0.0%
64,585	71,732	80,204	433	Repair Equip (Instructional)	76,506	75,814	(692)	$ 3,800	$ 55,380	73%	16,634	75,814	-	0.0%
56,243	42,513	74,313	434	Repair Equip (Non-Instructional)	72,200	67,067	(5,133)	$ 813	$ 41,134	61%	25,120	67,067	-	0.0%
558,567	235,810	1,522,111	435	Building Projects	153,182	48,411	(104,771)	$ 6,655	$ 41,756	86%	150,000	198,411	(150,000)	-309.8%
30,946	125,536	136,400	436	Grounds Projects	66,455	22,000	(44,455)	$ 57,089	$ -	0%		57,089	(35,089)	-159.5%
202,628	298,968	342,984	437	Restore/Prevent Maintenance	347,598	488,363	140,765	$ -	$ 342,908	70%	145,455	488,363	-	0.0%
184,124	184,303	185,405	440	Equip Rentals & Copiers	184,127	184,127		$ 58,903	$ 111,584	61%	13,640	184,127	-	0.0%
-	-	34,357	441	Building Rental	35,000	35,000		$ 14,298	$ 28,348	81%		42,646	(7,646)	-21.8%
14,599	12,579	12,791	450	Gas/Travel Maintenance	15,400	15,400		$ 3,200	$ 6,108	40%	6,092	15,400	-	0.0%
185,203	202,784	222,009	451	Custodial Supplies	240,000	240,000		$ 4,000	$ 164,954	69%	71,046	240,000	-	0.0%
241,880	205,196	265,915	452	Maintenance Supplies	250,000	280,000	30,000	$ 6,624	$ 183,150	65%	90,226	280,000	-	0.0%
71,125	64,325	73,897	490	School Security	75,000	88,300	13,300	$ 6,300	$ 80,454	91%	1,545	88,300	-	0.0%
$ 5,212,229	$ 5,608,688	$ 7,241,402		TOTAL PROPERTY SERVICES	$ 6,124,597	$ 6,124,597	$ -	$ 1,402,762	$ 4,006,241		$ 698,146	$ 6,107,149	$ 17,448	0.3%
100.0%	107.6%	129.1%			84.6%	84.6%		22.9%	65.4%		11.4%	99.7%	0.3%	
2,692,629	2,754,137	3,031,623	510	Transportation - Regular	3,340,964	3,340,964	-	$ 26,092	$ 3,288,618	98%	-	3,314,710	26,254	0.8%
566,676	564,665	652,651	511	Trans-Spec Ed-Internal	732,853	732,853	-	$ 8,983	$ 713,860	97%	10,010	732,853	-	0.0%
94,284	135,617	144,469	512	Trans-Spec Ed-Public	125,685	125,685	-	$ 59,753	$ 112,103	89%		171,856	(46,171)	-36.7%
210,945	240,865	271,964	513	Trans-Spec Ed-Private	286,650	286,650	-	$ 151,097	$ 187,498	65%		338,595	(51,945)	-18.1%
24,994	29,490	29,731	516	Trans-Field Trips	42,144	44,484	2,340	$ 6,406	$ 26,113	59%	11,965	44,484	-	0.0%
282,115	289,667	256,742	517	Gasoline-Buses	345,345	345,345	-	$ 55,860	$ 104,139	30%	20,000	179,999	165,346	47.9%
-	-	-	518	Trans-Alternative Ed	-	-	-					-	-	-
155,426	169,836	174,755	520	Property Insurance	187,968	187,968	-	$ -	$ 185,491	99%		185,491	2,477	1.3%
14,366	11,372	13,362	521	Flood Insurance	14,364	14,364	-	$ -	$ 15,573	108%		15,573	(1,209)	-8.4%
303,335	274,430	298,587	523	Liability Insurance	320,438	320,438	-	$ -	$ 308,026	96%		308,026	12,412	3.9%
48,500	60,625	75,781	529	Athletic Insurance	81,465	81,465	-	$ -	$ 104,410	128%		104,410	(22,945)	-28.2%
476,555	570,691	598,442	530	Communication Systems	491,293	491,293	-	$ 39,553	$ 332,322	68%	119,418	491,293	-	0.0%
30,410	44,709	36,153	535	Postage	45,000	45,000	-	$ 6,206	$ 28,447	63%	5,000	39,653	5,347	11.9%
106,194	73,890	97,209	540	Advertising	110,000	110,000	-	$ 34,196	$ 30,422	28%		64,618	45,382	41.3%
46,070	27,395	31,486	550	Printing	42,440	40,280	(2,160)	$ 8,688	$ 19,491	48%		28,179	12,101	30.0%
1,729,412	1,544,048	1,619,445	560	Tuition-Public	1,800,000	1,800,000	-	$ 345,896	$ 1,344,575	75%	(90,000)	1,600,471	199,529	11.1%
34,719	37,827	48,368	563	Tuition-Court & Agency Placed	100,000	100,000	-	$ 28,991	$ 17,531	18%		46,522	53,478	53.5%
52,282	51,480	44,290	565	Tuition-Alternative Ed	59,500	59,500	-	$ 44,290	$ 4,324	7%		48,614	10,886	18.3%
353,500	467,750	498,900	567	Tuition-Litigation	425,000	425,000	-	$ 117,000	$ 142,167	33%	225,000	484,167	(59,167)	-13.9%
22,150	20,799	12,055	569	Tuition-Summer Programs	20,000	20,000	-	$ -	$ 20,000	100%		20,000	-	0.0%
32,073	36,335	29,339	580	Staff Travel/Mileage	54,834	54,654	(180)	$ 12,034	$ 25,502	47%		37,536	17,118	31.3%
$ 7,276,634	$ 7,505,628	$ 7,965,352		TOTAL OTHER PURCH SERVICES	$ 8,625,943	$ 8,625,943	$ -	$ 945,045	$ 7,010,612		$ 301,393	$ 8,257,050	$ 368,893	4.3%
100.0%	103.1%	106.1%			108.3%	108.3%		11.0%	81.3%		3.5%	95.7%	4.3%	
814,905	891,385	1,016,020	611	Supplies-Instructional	847,647	899,081	51,434	113,771	680,238	76%	105,072	899,081	-	0.0%
527,755	591,351	646,077	612	Software	674,099	657,213	(16,886)	22,012	620,757	94%	14,434	657,213	-	0.0%
122,397	129,224	134,139	613	Tech Supplies	129,975	147,675	17,700	9,915	123,995	84%	13,765	147,675	-	0.0%

WESTPORT PUBLIC SCHOOLS
Quarterly Financial Report - 3Q
March 31, 2016
Theoretical Expenditure Rate: 75%

2012-2013 Year-End Expense	2013-2014 Year-End Expense	2014-2015 Year-End Expense	Object Code	Descriptions	2015-2016 ADOPTED BUDGET	2015-2016 ADJUSTED BUDGET	BUDGET ADJUSTMENT	2015-2016 ENCUMBERED TO DATE	2015-2016 EXPENDED TO DATE	YTD %	ESTIMATED ADJUSTMENTS	PROJECTED TO EOY	BALANCE AVAILABLE	Balance Available %
527,074	523,798	736,439	154	Long Term Subs	565,000	565,000	-	291,814	387,333	69%	60,000	739,147	(174,147)	-30.8%
158,022	203,480	209,479	155	Non-Cert Subs	200,000	200,000	-	54,690	119,674	60%	-	174,364	25,636	12.8%
302,079	316,421	355,379	156	Overtime	325,000	325,000	-	-	323,706	100%	60,000	383,706	(58,706)	-18.1%
1,605,208	$ 1,666,707	$ 1,836,603		Sub-Total Other Salaries	$ 1,675,140	$ 1,675,140	$ -	$ 608,354	$ 1,140,331		$ 161,971	$ 1,910,656	$ (235,516)	-14.1%
100.0%	103.8%	110.2%			91.2%	91.2%		*36.3%*	*68.1%*		*9.7%*	*114.1%*	*-14.1%*	
67,002,468	$ 69,143,079	$ 70,405,743		TOTAL SALARIES	$ 72,851,180	$ 72,851,180	$ -	$ 19,867,901	$ 51,201,889		$ 980,299	$ 72,050,089	$ 801,091	1.1%
100.0%	103.2%	101.8%			103.5%	103.5%		*27.3%*	*70.3%*		*1.3%*	*98.9%*	*1.1%*	
12,622,436	13,382,040	14,501,700	210	Health Insurance	14,247,493	14,247,493	-	5,418,869	8,828,624	62%		14,247,493	-	0.0%
278,727	266,146	279,470	211	Group Life Insurance	250,712	250,712	-	43,912	239,880	96%	3,200	286,992	(36,280)	-14.5%
42,000.0	40,760	37,105	212	Teacher Child Care (WEA)	40,000	40,000	-	500	24,000	60%	15,500	40,000	-	0.0%
45,206	38,000	49,500	213	Health Insurance Waiver	50,000	50,000	-	26,500	15,000	30%	8,500	50,000	-	0.0%
1,795,398	1,843,251	1,886,312	220	FICA/Medicare	2,013,597	2,013,597	-	547,173	1,392,480	69%	55,000	1,994,653	18,944	0.9%
28,217	26,208	24,623	240	Course Reimbursement	50,000	50,000	-	-	12,623	25%	16,000	28,623	21,377	42.8%
220,523	67,416	19,195	250	Unemployment Compensation	50,000	50,000	-	11,987	53,443	107%		65,430	(15,430)	-30.9%
351,610	444,270	551,512	260	Workers Compensation	583,213	583,213	-	12,000	556,206	95%		568,206	15,007	2.6%
33,644	33,208	33,115	287	Uniform Allowance	34,000	34,000	-	1,100	38,938	115%		40,038	(6,038)	-17.8%
31,112	28,091	33,613	290	Other Employee Benefits	25,000	25,000	-	-	23,390	94%		23,390	1,610	6.4%
15,448,872	$ 16,169,390	$ 17,416,145		TOTAL BENEFITS	$ 17,344,015	$ 17,344,015	$ -	$ 6,062,041	$ 11,184,584		$ 98,200	$ 17,344,825	$ (810)	0.0%
100.0%	104.7%	107.7%			99.6%	99.6%		*35.0%*	*64.5%*		*0.6%*	*100.0%*	*0.0%*	
137,408	63,772	55,625	320	HomeBound	90,000	88,770	(1,230)	$ 5,830	$ 39,205	44%		45,035	43,735	49.3%
27,692	36,798	47,665	321	Gifted Activities	40,000	40,000	-	$ 19,150	$ 16,993	42%	6,000	42,143	(2,143)	-5.4%
-	-	-	322	Educational Interns	75,000	75,000	-	$ 5,700	$ 41,910	0%		47,610	27,390	36.5%
237,444	282,257	323,296	323	Instr Program Improvements	364,256	365,480	1,224	$ 64,920	$ 279,149	76%	21,411	365,480	-	0.0%
8,017	14,258	20,127	324	Pupil Services	15,000	16,190	1,190	$ 4,799	$ 11,341	70%		16,140	50	0.3%
104,127	141,946	133,768	325	PPT Consultations	161,000	161,130	130	$ 36,334	$ 124,795	77%		161,129	1	0.0%
102,822	99,148	125,281	327	Student Evaluations-Outside	96,000	96,000	-	$ 21,736	$ 74,264	77%	25,000	121,000	(25,000)	-26.0%
20,763	20,000	25,840	328	Medical Advisors	26,000	25,870	(130)	$ 10,242	$ 13,281	51%	2,347	25,870	-	0.0%
199,235	210,086	171,584	330	Other Prof/Tech Services	303,900	302,716	(1,184)	$ 99,933	$ 202,008	67%		301,941	775	0.3%
486,273	314,693	353,542	331	Legal/Negotiations	350,000	350,000	-	$ 125,375	$ 184,057	53%	50,568	360,000	(10,000)	-2.9%
33,952	29,823	66,306	332	Licenses & Fees	-	-	-	$ -	$ -			-	-	-
1,357,734	$ 1,212,781	$ 1,323,034		TOTAL PURCHASED SERVICES	$ 1,521,156	$ 1,521,156	$ -	$ 394,019	$ 987,003		$ 105,326	$ 1,486,348	$ 34,808	2.3%
100.0%	89.3%	109.1%			115.0%	115.0%		*25.9%*	*64.9%*		*6.9%*	*97.7%*	*2.3%*	
87,195	89,008	89,427	411	Water/Sewer	98,201	98,201	-	$ 18,746	$ 73,810	75%	5,645	98,201	-	0.0%
1,649,123	1,729,775	1,803,729	413	Electricity	1,971,445	1,971,445	-	$ 539,634	$ 1,540,952	78%		2,080,586	(109,141)	-5.5%
829,247	1,097,041	1,250,583	414	Natural Gas	1,300,624	1,300,624	-	$ 427,308	$ 553,992	43%		981,300	319,324	24.6%
22,691	137,515	87,477	415	Heating Oil	27,084	27,084	-	$ 3,410	$ 8,474	31%	15,200	27,084	-	0.0%
398,640	463,128	466,216	421	Contracted Maintenance	499,585	499,585	-	$ 127,090	$ 359,493	72%	13,002	499,585	-	0.0%
418,011	487,001	408,209	431	Building Maintenance	403,150	415,419	12,269	$ 84,142	$ 273,110	66%	58,167	415,419	-	0.0%

WESTPORT PUBLIC SCHOOLS
Quarterly Financial Report - 3Q
March 31, 2016
Theoretical Expenditure Rate: 75%

2012-2013 Year-End Expense	2013-2014 Year-End Expense	2014-2015 Year-End Expense	Object Code	Descriptions	2015-2016 ADOPTED BUDGET	2015-2016 ADJUSTED BUDGET	BUDGET ADJUSTMENT	2015-2016 ENCUMBERED TO DATE	2015-2016 EXPENDED TO DATE	YTD %	ESTIMATED ADJUSTMENTS	PROJECTED TO EOY	BALANCE AVAILABLE	Balance Available %
4,825,475	4,791,627	4,854,834	100	Certified Adminstrators	5,016,239	5,016,239	-	1,368,178	3,690,262	74%	84,000	5,142,440	(126,201)	-2.5%
1,619,710	1,669,694	1,673,540	101	Directors	1,719,680	1,719,680	-	470,650	1,245,474	72%	-	1,716,124	3,556	0.2%
21,324,451	21,922,122	21,903,838	102	Reg Ed Teachers	22,491,411	22,491,411	-	6,384,042	15,559,231	69%	-	21,943,273	548,138	2.4%
10,894,081	11,210,927	11,149,855	103	Special Area Teachers	11,490,632	11,490,632	-	3,332,419	8,119,231	71%	-	11,451,650	38,982	0.3%
3,143,981	3,226,379	3,266,368	104	Support Teachers	3,611,036	3,611,036	-	1,086,710	2,677,111	74%	-	3,763,821	(152,785)	-4.2%
165,289	164,520	153,024	105	Curr/Instr Resource	162,384	162,384	-	43,960	102,724	63%	-	146,684	15,700	9.7%
1,367,787	1,373,103	1,363,386	108	Library/Media Teachers	933,820	933,820	-	222,424	594,431	64%	-	816,855	116,965	12.5%
4,050,464	4,284,151	4,307,725	109	Guidance	1,420,990	1,420,990	-	348,162	1,013,230	71%	-	1,361,392	59,598	4.2%
1,573,222	1,634,600	1,631,963	110	Special Ed Teachers	4,365,068	4,365,068	-	1,230,870	3,128,675	72%	-	4,359,545	5,523	0.1%
289,777	294,526	280,190	113	Psychologists	1,650,961	1,650,961	-	447,819	1,154,880	70%	-	1,602,699	48,262	2.9%
1,086,749	1,127,943	1,281,302	114	Social Workers	286,171	286,171	-	92,723	194,532	68%	-	287,255	(1,084)	-0.4%
141,085	161,221	162,192	115	Speech/Hearing Therapists	1,368,000	1,368,000	-	363,823	914,244	67%	-	1,278,067	89,933	6.6%
688,790	599,801	643,940	116	Staff Dev/Leadership	153,847	153,847	-	36,267	97,683	63%		133,950	19,897	12.9%
384,453	524,303	525,193	118	Extra-Curricular	750,947	750,947	-	-	314,792	42%	339,228	654,020	96,927	12.9%
199,936	228,355	235,348	119	Coaches-Intrmral/Intrschlstic	629,259	629,259	-	-	348,400	55%	280,859	629,259	-	0.0%
				Curriculum Work/Other	293,740	293,740	-	-	90,062	31%	25,000	115,062	178,678	60.8%
$ 52,650,930	$ 54,098,710	$ 54,316,913		Sub-Total Certified Salaries	$ 56,344,185	$ 56,344,185	$ -	$ 15,428,047	$ 39,244,962		$ 729,087	$ 55,402,096	$ 942,089	1.7%
100.0%	102.7%	100.4%			103.7%	103.7%		*27.4%*	*69.7%*		*1.3%*	*98.3%*	*1.7%*	
1,014,408	1,223,432	1,245,692	120	Support Supervisors	1,387,291	1,387,291	-	365,526	1,025,351	74%	-	1,390,877	(3,586)	-0.3%
2,256,460	2,339,269	2,436,337	121	Secretaries	2,512,233	2,512,233	-	647,688	1,812,152	72%	-	2,459,790	52,443	2.1%
1,702,659	1,717,600	1,897,717	122	Paraprofessionals	1,948,104	1,948,104	-	470,663	1,396,014	72%	-	1,866,677	81,427	4.2%
2,040,958	2,176,860	2,448,846	123	Sped Paraprofessionals	2,520,877	2,520,877	-	638,845	1,863,279	74%	-	2,502,124	18,753	0.7%
2,515,919	2,601,906	2,678,600	124	Custodians	2,728,883	2,728,883	-	746,383	1,980,734	73%	-	2,727,117	1,766	0.1%
530,818	513,555	551,734	125	Maintainers	575,939	575,939	-	152,419	425,190	74%	-	577,609	(1,670)	-0.3%
794,630	814,350	836,175	126	Nurses	855,998	855,998	-	244,733	611,519	71%	-	856,252	(254)	0.0%
198,908	215,813	230,624	127	Nurses Aides	250,833	250,833	-	73,817	177,313	71%	-	251,130	(297)	-0.1%
515,588	530,271	533,588	128	Technology Assistants	549,596	549,596	-	144,568	409,462	75%	-	554,030	(4,434)	-0.8%
61,779	63,591	65,251	129	Security Aides	259,208	259,208	-	56,544	143,982	56%	6,400	206,926	52,282	20.2%
245,838	248,266	219,377	130	Bus Monitors	250,000	250,000	-	-	153,513	61%	77,487	231,000	19,000	7.6%
196,032	198,198	198,599	131	Athletics	210,000	210,000	-	62,098	150,480	72%	-	212,578	(2,578)	-1.2%
110,195	109,484	110,596	133	Other	101,282	101,282	-	32,153	110,104	109%	-	142,257	(40,975)	-40.5%
404,898	464,602	487,040	135	Occupational Therapists	495,794	495,794	-	142,165	415,956	84%	-	558,121	(62,327)	-12.6%
157,240	160,465	162,051	136	Physical Therapists	160,817	160,817	-	46,193	124,201	77%	-	170,394	(9,577)	-6.0%
-	-	150,000	140	Adult Ed Mandated	25,000	25,000	-	7,755	17,346		5,354	30,455	(5,455)	-
$ 12,745,380	$ 13,377,662	$ 14,252,227		Sub-Total Non-Certified Salaries	$ 14,831,855	$ 14,831,855	$ -	$ 3,831,500	$ 10,816,596		$ 89,241	$ 14,737,337	$ 94,518	0.6%
100.0%	105.0%	106.5%			104.1%	104.1%		*25.8%*	*72.9%*		*0.6%*	*99.4%*	*0.6%*	
352,588	318,710	267,766	150	Perm Cert Subs	263,200	263,200	-	156,650	118,041	45%		274,691	(11,491)	-4.4%
187,452	227,743	168,199	151	Daily Cert Subs	222,040	222,040	-	105,200	133,648	60%		238,848	(16,808)	-7.6%
44,700	37,195	49,145	152	Staff Training Cert Subs	55,500	55,500	-	-	30,234	54%	25,266	55,500	-	0.0%
33,293	39,360	50,196	153	PPT Cert Subs	44,400	44,400	-	-	27,695	62%	16,705	44,400	-	0.0%

Medical Health Insurance Fund
FY 15-16 Projections
with Claims Cash Draw Data as of March 31, 2016

		FY16 Projections		
	Mar-15	Sep-15	Dec-15	Mar-16
Cash receipts				
General Fund Budget from line 210	14,049,493	14,247,493	14,247,493	14,247,493
Other Fund Contributions	85,000	70,000	70,000	115,808.00
Employee Contributions (Active)	2,672,011	2,607,655	2,607,655	2,611,452
Flex Spending Accounts	-	-	-	-
Cobra Participants	18,100	18,100	18,100	17,556
Retirees under 65	365,701	365,701	365,701	370,000
State Teachers Retirement (TRB)	160,000	150,000	150,000	115,446
Life Insurance Premiums	25,000	25,000	25,000	25,000
Retirees over 65	442,939	442,939	442,939	442,939
Other Contributions (FMLA, Retiree Life, etc.)	-	45,000	45,000	45,000
Pharmacy Rebate				136,622
Total cash receipts	17,818,244	17,971,888	17,971,888	18,127,316
Cash disbursements				
Medical	11,914,994	11,394,635	11,085,349	10,828,288
Prescription	2,112,056	2,106,117	2,174,638	2,124,210
Dental	1,082,451	1,149,455	1,118,896	1,068,343
Flex Spending Accounts	-	-	-	-
Contribution to HSA	1,159,000	1,162,000	1,124,000	1,118,000
Medical Administrative	422,832	420,720	418,858	416,497
Network Access Fee	163,981	163,162	160,312	161,335
Individual Stop-Loss	772,613	772,613	756,215	761,038
Dental Administrative	54,850	54,564	53,847	53,275
FSA Administrative	2,931	2,931	2,931	2,931
Consulting Fee	45,000	45,000	45,000	45,000
ACA Related Fees	89,540	88,792	89,907	89,907
PCORI Fee	1,666	4,197	4,268	8,431
Retirees over 65	723,435	723,435	723,435	723,435
Total cash disbursements	18,545,349	18,087,621	17,752,656	17,400,690
Change in cash balance	(727,105)	(115,733)	219,232	726,626
Beginning cash balance	2,471,243	2,471,243	2,471,243	2,471,243
Insurance Fund Draw Down (budget)	(500,000)	(500,000)	-	-
Insurance Fund Draw Down (YTD delta)	(227,105)	384,267	-	-
Projected Operating Surplus(Shortfall)-Cash basis			219,232	726,626
Ending cash balance(deficit)-projection	1,744,138	2,355,510	2,690,475	3,197,869
Less: Incurred but not reported claims (carrying FY15)	(952,000)	(952,000)	(952,000)	(952,000)
Net Position(Deficit) end of year-projection	792,138	1,403,510	1,738,475	2,245,869

		9% Ceiling	Drawdown FY17	Excess Above 9% Ceiling
	22.8%	$ 1,261,876	1,532,375	$ 403,618
	-6.8%	$ (952,000)	-	
	15.0%	$ 309,876	$ 1,532,375	

Claims Cash Draw Against Insurance Fund Account

	Medical/Rx	Dental	Flex	Other	Total	Avg. Monthly Claims (Med/Rx/Dental)	Variance	Avg. Monthly Claims-FY 2015 (Med/Rx/Dental)	Variance
Jul 2015	$ 1,069,478	$ 66,973	383	$ 29	$ 1,136,863	$ 1,136,451		$ 1,034,843	
Aug 2015	$ 1,254,174	$ 113,005	8,498	$ -	$ 1,375,677	$ 1,251,815	$ 115,364	$ 1,339,589	$ 304,846
Sept 2015	$ 1,411,824	$ 81,297	5,898	$ -	$ 1,499,018	$ 1,332,250	$ 80,435	$ 1,342,380	$ 2,591
Oct 2015	$ 814,214	$ 92,276	4,785	$ -	$ 911,274	$ 1,225,810	$ (106,440)	$ 1,193,967	$ (148,413)
Nov 2015	$ 1,206,377	$ 73,055	13,315	$ 90,156	$ 1,382,903	$ 1,236,534	$ 10,724	$ 1,109,290	$ (84,677)
Dec 2015	$ 901,778	$ 88,803	14,797	$ -	$ 1,005,378	$ 1,195,542	$ (40,992)	$ 1,086,694	$ (22,596)
Jan 2016	$ 830,448	$ 64,138	9,885	$ -	$ 904,471	$ 1,152,548	$ (42,994)	$ 1,105,627	$ 18,933
Feb 2016	$ 1,095,098	$ 110,546	9,516	$ -	$ 1,215,161	$ 1,159,185	$ 6,637	$ 1,089,630	$ (15,997)
Mar 2016	$ 1,242,555	$ 98,241	7,584		$ 1,348,380	$ 1,179,364	$ 20,179	$ 1,095,959	$ 6,328
	$ 9,825,946	$ 788,333	74,661	$ 90,185	$ 10,779,125				
YTD/Estimate	75.9%	73.8%	n/a	n/a					
Theoretical YTD Spend Rate	75.0%	75.0%	n/a	n/a					
variance %	0.9%	-1.2%							
variance $	$ 111,572	$ (12,924)							

FY16 Projection (Mar-16):	$ 12,952,498		1,068,343	
YTD Expense:	$ (9,825,946)		$ (788,333)	
Balance available to June 30:	$ 3,126,552		$ 280,010	
Average remaining monthly allowance:	$ 1,042,184	+	$ 93,337 =	1,135,521
Proj. Excess Above 9% remaining monthly allowance:				134,539
				1,270,060