

Mass Customization: A Future-Focused Vision

HAMBURG AREA SCHOOL DISTRICT

PREPARED FOR THE BOARD OF SCHOOL DIRECTORS AND THE COMMUNITY

DR. RICHARD J. MEXTORF SUPERINTENDENT OF SCHOOLS



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INTRODUCTION

Another presidential election is just around the corner. Every election is accompanied by debates on various topics of national importance. Debates about the economy, the national debt, taxes, national defense, free trade, terrorism, job creation, global warming, etc. emerge, depending on the condition of the nation during that particular election cycle.

One topic that emerges during every election cycle is public education. As both a shared responsibility and a public good, education is, without guestion, a matter of great importance to the health and vitality of the nation. For more than one hundred years, public education has existed as a paradox; it is viewed as both the cause of our nation's ills and as the nation's best hope for renewal in times of crisis. This paradox creates a ceaseless vortex of debate, yet the status quo remains intact. From an early focus on job training, the emergence of college for all, the Space Race, equal rights, accommodating those with special needs, to accountability and standards, the American system of public education soldiers on, remaining largely unchanged.

The American system of public education is unique in that it endeavors to educate all the nation's youth. This is in stark contrast to many countries around the world, which focus only on those deemed most able, leaving the remaining children to fend for themselves. In some countries, students with disabilities are not permitted to attend school. Thankfully, American ideals embrace the inherent value of all children. In short, we educate all children, which makes the American system of public education the greatest system on earth.

Those who attack public education blame teachers, unions, parents, fund-

ing, the Internet, television, video games, and other societal conditions for the perceived decline of the system. When you throw-in the fact that everyone has been to school, so they think they know all about schools, and that education deals with the two things people love most, their children and their money, you have a recipe for interminable discord.

Those who are critical of the system are not wrong in their assessment that we must do better if our nation is to continue to be a world leader. While the impacts of the previously listed influences are not to be discounted, they are not the reason why our system exists in its current state. The system is performing exactly as it was designed to perform; delivering instruction, stored in silos, in a mass-production, assembly line format in which time is the constant and the learning is the variable. The system creates academic winners and losers. The winners go to college; the losers go to work in the factories or other non-skilled or semi-skilled labor. The system could tolerate an acceptable loss rate because there were factories in which the academic losers could earn a family-sustaining wage.

The system is not broken. It is simply the wrong system, built to meet the needs of a different era. Imagine going car shopping only to find that you had no choice but to purchase a Model-T; it would get you where you needed to go, but you would be hard pressed to say that it met the needs of modern transportation.

Kids do want to learn and teachers care deeply about students' success. They do not need fixing. In fact, they are flourishing despite existing in an outdated system. Our national response to the indictments has been, to paraphrase Henry Ford, "You can have any color



66 IN THE 21ST CENTURY IT WILL BE **IMPORTANT TO KNOW** WHAT TO DO. WHEN YOU **DON'T KNOW** WHAT TO DO.

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Model-T you want, as long as it's black." As a profession, we must stop reacting to the attack du jour with yet another quick fix, which has served no purpose other than to dilute our mission and to berate and demoralize our teachers.

Let's stop treating a broken arm with a **Band-Aid.** The time has come to replace the system. We must replace the current mass-production, assembly line system with one that allows every child, without exception, to flourish. We must build a system of mass-customized learning.

A mass-customized system makes learning the constant and time the variable.

It meets every student at his or her developmental level, is centered around student interests, accounts for different learning styles, and allows students to move along at their own pace. Masscustomized learning is based on life roles. Students demonstrate competencies based on 21st century skills and spheres of living, removing content from individual silos and having students engage with it in integrated, rigorous, relevant cross-curricular contexts. Technology infrastructure allows students, teachers, and parents access

to just-in-time information in a friction free digital environment.

Wholesale systemic change is a monumental task. However, our moral imperative leaves us no alternative. We must be unafraid, unashamed, and unapologetic in our approach to creating a system that meets the needs of the 21st century, a system that will unshackle our teachers and fully engage every child, without exception. The future of the nation depends on it; our children most certainly deserve it.

BACKGROUND THE PROBLEM OF THE DAY: **CIRCA 1900**

In 1892, a group of scholars came together to solve the problem of the day. The Committee of Ten, as it became known, came together to solve the economic realities caused by technological advances in the workplace and the concomitant migration of population to major cities.

Technological advances in farming equipment, such as the invention of the combine, required fewer workers in agriculture. The Industrial Revolution, which emerged in England in the mid 1800s and propelled it to status as the world's superpower by 1900, began to burgeon in the United States. Farm workers began moving to cities and, accompanied by an enormous immigrant population, created a massive population shift from farms to cities in order to fuel the demand for factory workers.

The Committee of Ten sought to create a system of education that would prepare students for a broad array of life and career choices. Although few would attend college, the Committee believed that all students should have access to a course of study that helped them develop as thinkers and citizens, regardless of career choice.

Opponents favored a system that separated the few bound for university and tracked the remaining students into training programs for factory work and manual labor. The idea was to assimilate the immigrant population and to provide a steady stream of workers who could follow directions and keep the assembly lines humming.

The system that emerged from this national debate worked beautifully. Schools were designed to resemble factories. The Industrial Revolution vaulted the United States to world leaders as producers of goods and services, creating a superpower in the process. A small percentage of students went to college to prepare for work as doctors, lawyers, accountants, etc., which accounted for about ten percent of the available workforce. The remaining ninety percent of students were trained in vocational programs.

The stratification of the elite and the working class would remain until after World War II. Those who did not do well in the college preparatory track could always find work, complete with family sustaining wages, in the booming factories of the Industrial Age. The education system could tolerate an "acceptable loss rate" because factory work was abundant.

Once college became the accepted norm for most following Word War II and the suburbanization of America began, a clear path to the American Dream emerged. Get the "right" grades in high school, get the "right" SAT score, get into the "right" college, and be assured of a job with a salary, benefits, a retirement package, 35 years of employment with one company, and a gold watch upon retirement. This pathway would assure the opportunity for a home in the suburbs, the white picket fence, and 2.5 kids to boot! Those who

played the SAT-ocracy game the best (the "playschool" kids) were the academic winners. Those who did not, our "acceptable losses," could find familysustaining employment in factories. This, too, would buy you the house, picket fence, and 2.5 kids in suburbia.

THE PROBLEM OF THE DAY: **BACK TO THE FUTURE**

Fast forward through the post World War II era, when the GI Bill made college possible for everyone: the suburbanization of America in the 1950s, the launch of Sputnik in 1957, the Civil Rights movement in the 1960s, the rise of Japanese automotive manufacturing and technology innovation in the 1970s, A Nation at Risk in the 1980s, and the emergence of the Internet in the 1990s, all of which have contributed to a world that is small, flat, and connected.



ERA	AGE	VALUED ASSET
1800–1900	Agricultural	Muscle
1900–1950s	Industrial	Machines
1950s–1990s	Information	Acquired Knowledge
1990s –Present	Conceptual	Continuous Learning

Today, we live in a world where any job that can be digitized, outsourced, or automated has been or will be shipped overseas. This has been occurring in manufacturing for decades, as evidenced by the loss of manufacturing jobs in droves. As a society, we considered the outsourcing and off-shoring of manufacturing jobs to be progress. After all, it meant we could purchase goods cheaper than ever before.

With the advent of digitization (think iTunes and Kindle Readers), white collar and "grey collar" work is being outsourced. While some non-



fungible jobs remain, jobs that were once considered secure, i.e., architect, engineer, medical technician, accountant, etc., are being outsourced at an alarming rate. This phenomenon has gotten our attention because those who followed the same rules as we followed (the SAT-ocracy) are now in danger of becoming obsolete.

The old rules of the SAT-ocracy no longer apply. The dramatic changes in the global economy have placed an alarming number of blue collar, grey collar, and even some white collar jobs in danger of being digitized, outsourced, or automated. The average American worker will change jobs an average of nine times before the age of 35. We can no longer sustain a system that prepares ninety percent of students for ten percent of the jobs. We can no longer tolerate an acceptable loss rate. We do not have a child to waste.

If our kids are to live lives of significance and meaning, we must educate them differently. For our students to be "untouchables" in the job market and modern life, we must prepare them to be versatilists, with broad and deep skills. We must prepare them to be solvers, connectors, and contributors.

Moreover, we must prepare them to thrive in a flat, connected world in a variety of life roles. In short, we must prepare our kids for their futures, not for our past.

MORAL IMPERATIVE

As I mentioned, the current educational delivery model worked beautifully to solve the problem of the day more than one hundred years ago. America became a superpower and the nation was at work. Over time, the problem of the day has changed, requiring a new system of educating our nation's youth.

Teachers have been true heroes in the current system; designing instruction to meet students' unique interests, learning styles, and to accommodate the various rates at which students engage in learning. They have long understood the inherent value in each student, and that every student possesses unique talents and combinations of intelligence. Teachers have squeezed every ounce of productivity from a mass-production, assembly line system. We can no longer expect them to "just work harder," or "be more efficient." We must provide teachers a new system that will enable them to masscustomize education for every learner.

The system works well for a small percentage of students. As a parent, you might be saying to yourself, "the system worked for me and it is working for my kids; don't mess with it." As parents, we all hold the best interest of our own children paramount. However, the reflective question parents need to ponder is this: "If a new system of masscustomized education would ensure my child the same success I expect from the current system, do I really care what happens to the other kids in the system?"

WE MUST BE: UNAFRAID.

Every parent must answer this question for himself or herself. However, as leaders, we are charged with caring for all children. We owe it to our students, our communities, and our nation to prepare every child, without exception, to live lives of significance and meaning.

To those who cannot connect emotionally with this sentiment, consider it this way: we can either invest in a new system that mass-customizes education for every child, without exception, or we can pay for the inevitable acceptable loss rate in our prisons, rehabilitation centers, and in our unemployment and welfare lines. As a public good, it is our moral imperative to consider the needs of all children for the good of the nation. Our acceptable loss rate must be zero.

MISSION

The mission statement should describe three things:

What do you do? For whom do you do it? What is the benefit?

HASD MISSION STATEMENT:

To prepare learners to live lives of significance and meaning

COMPELLING PURPOSE

The function of a statement of compelling purpose is to crystallize the mission, providing a laser-like focus on the work of the organization. In our case, it further defines the term "significance and meaning."

HASD STATEMENT OF **COMPELLING PURPOSE:**

Uniting Talent & Passion!

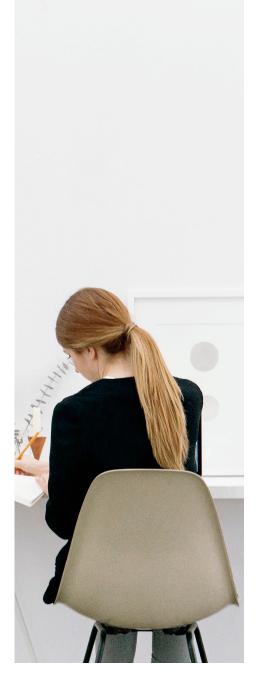
The world has changed. In the 21st century, any job that can be digitized, outsourced, or automated has gone or will go overseas. The job market calls for people with portable skills and the ability to learn and relearn, as the work requires.

In the 21st century, meaningful work will be defined largely by three characteristics: mastery, autonomy, and connection to a greater purpose.

- Meaningful work involves enough complexity to require mastery and continuous improvement.
- **Autonomy** requires broad and deep skills, the ability to think across disciplines, and to make contextual connections.
- Connection to a greater purpose requires a willingness to transcend individual interests and embrace multiple viewpoints to make contributions of enduring value.

For students to be successful in the 21st century, they must have a clear understanding of what they are great at doing (talents), and what they love to do (passions). Students understanding and developing their talents, and knowing what fuels their passions gives them the best chance of mastery, autonomy, and connection to a greater purpose, both in work and in life.

Our compelling purpose defines why our "organizational feet hit the floor each morning." Simply put, it defines why we exist. The compelling purpose at Hamburg Area School District is to ensure that all children, without exception, find that place where their talents and passions come together. Doing so gives every student his or her best chance to make a meaningful contribution to the world and to live a life of significance and meaning. In short, we





are doing more than preparing students to make a living; we are preparing students to make a *life*.

As an organization, we remind ourselves and the world of our compelling purpose with the phrase *Uniting Talent and Passion!* By preparing the heads, hearts, and hands of young people, Hamburg Area School District is preparing meaningful contributors for the 21st century.

LOOKING THROUGH THE WINDSHIELD VISION

A vision provides a detailed description of the organization operating at its ideal best. Represented as a statement, the vision contains "pillars" that describe in detail how the organization functions at its ideal best.

HASD VISION STATEMENT:

A Boundaryless Environment Where Learners are Fully Engaged in Holistic Development

THE PILLARS

Boundaryless Environment -A term borrowed from General Electric during the Jack Welch era, boundaryless in our context refers to a 24/7 learning environment, where learning can occur anywhere, at any time, synchronously or asynchronously, from experts both locally and globally. A boundaryless learning environment allows academic "fast runners" to move through content at an accelerated pace, allows learners to work collaboratively, both synchronously and asynchronously, and allows them to learn to manage digital information in an environment that has gone from information scarcity to information overload. In a boundaryless environment, the learning is the constant and time is the variable.

Fully Engaged – An environment of full engagement allows the learner to pursue content in areas of interest to her (customized). She has access to content around her specific styles of learning (individualized), and becomes a content creator, rather than a receptacle of information to be recalled for the test. Her understanding is assessed authentically through performance-based assessments.

Holistic Development – To prepare learners for a variety of life roles, we must educate the whole child. Life roles include learner, civic, cultural, economic, and personal, which are represented in the Spheres of Living (Appendix 1).

The pillars of the vision help students develop the requisite learner results (outcomes) listed below:

What learners need:

- To be able to do -21st century skills
- To be like Spheres of Living
- To know specific content. drawn from subjects after being derived from life roles.

A detailed description of 21st Century Skills, Spheres of Living, and accompanying icons are included in the appendices.

THE PATHWAYS: MASS-**CUSTOMIZED LEARNING**

Appropriate developmental level –

This means moving from a one-sizefits-all (just-in-case) system of delivery to one-size-fits-one (just-in-time) system of learner discovery. Rather than teachers "covering" content, with some students being ready to move on, some students' needs being met, and some students needing more time, students engage in individual learning plans designed to meet them at their developmental level.

Focused on student interest - This does not mean, "anything goes." For example, when reading a novel, lessons designed around student interest might take the form of having students select from a menu of choices, all representing the important themes to be studied, rather than all being made to read the

same book. Another example might be allowing learners to study important math concepts by maintaining statistics for a favorite sports team.

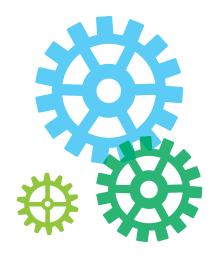
Engaged using various learning

styles – This allows students to select from a menu of options for engaging with content. For instance, students might choose to read, view a video, form a discussion group, perform an experiment, or do a project to interact with essential content.

Appropriate pace – Individualized learning plans allow learners to move through content at their own pace. The academic "fast runners" can work independently or collaboratively, while learners who need more time will not be forced to "keep up" with the class, thereby missing out on essential components of developmental curricula such as mathematics.

THE HEAVY LIFTING

What we want learners "to know" has been the focus of public education for over one hundred years. The current model is based on coverage, and has developed into a "mile wide, inch deep" approach to an ever-expanding body of knowledge. Content is still important. However, it must not be based on coverage of specific subjects. Content must be derived from examining life roles (Spheres of Living and 21st Century Skills) and choosing the appropriate content to develop specific learner results (outcomes). This represents a dramatic departure from the current model of "covering" content in specific subjects, which are maintained as separate bodies of information in independent "silos."



IN A TIME OF DRASTIC CHANGE IT IS THE LEARNERS WHO INHERIT THE FUTURE.

THE LEARNED **USUALLY FIND THEMSELVES BEAUTIFULLY EQUIPPED** TO LIVE IN A **WORLD THAT NO LONGER EXISTS**.

ERIC HOFFER

66 **WE NEED TO** PREPARE KIDS **FOR THEIR FUTURE. NOT FOR OUR PAST.** 99

Here's a list of things that comprise the "heavy lifting" required to move to a system of customized learning:

- –Based on Life Roles not subject area silos
- -To know, to do, to be like student results/demonstrated outcomes
- -Backward Mapped beginning with graduation and working backwards
- -Vertically Articulated eliminating gaps and overlaps in curriculum
- -Horizontally Aligned consistency within grade levels
- -Using Common Language common terminology among teachers

ESSENTIAL QUESTION FOR ACCESS AND INFRASTRUCTURE

Once content is derived, the mass customized approach requires us to ask the following question: How is this best learned? The answer to this question will define the model of access for students. Anything that is best learned online should be learned online. This allows teachers to spend time with students who require more time to demonstrate necessary results (outcomes).

Options for learner access:

- Virtually/Digitally (online)
- Direct Instruction
- Lab work
- Individual Projects
- Collaborative Projects
- Field Experiences/Job Shadow
- Informal Learning Groups
- Other

LOAD-BEARING WALLS

Load-bearing walls are the things that keep us doing things the way we have always done them. Much like a physical structure, load-bearing walls are necessary to maintain order and safety within an organization. However, we need to remove the loadbearing walls that maintain the status quo and replace them with walls that allow for greater flexibility, adaptability, nimbleness, and responsiveness.

Examples of load-bearing walls that maintain the status quo:

- Learners grouped in grades according to age
- Assembly line everyone moves at the same pace
- Time as constant, learning as variable
- Master schedules
- Master calendar
- Collective Bargaining Agreements
- Required "seat time" 900/990
- Traditional grades and weighting
- Class Rank
- The SAT-ocracy
- Tradition
- Nostalgia
- Certification

INFRASTRUCTURE

A mass-customized learning environment requires technology infrastructure. The necessary infrastructure currently exists and is being used by propriety companies. We need to harness this existing technology and repurpose it to meet our needs.

See the chart at right for examples of infrastructure needs and the companies that are currently using them.

FIRST STEPS

Systemic reform requires both top-down and bottom-up leadership. Although the narrative is written linearly, change occurs organically by engaging all stakeholders, finding the bright spots, and removing the barriers to implementation. Leaders must know when to be on the "balcony" and when to be on "the dance floor."

The process is also iterative. We will take some steps forward and some steps backward. We cannot be afraid of failure. Rather, we must encourage responsible risk-taking and learn from our efforts. We must celebrate successes and nurture synergy throughout the process.

CONCLUSION

Future-focused systemic change is a massive undertaking. To be sure, it would be easier to continue in the current system, attempting to maintain the status quo with maximum efficiency and effectiveness. However, the moral imperative that accompanies our current reality will not allow us to take the well-worn path.

We are compelled to meet the needs of every child, without exception. Our acceptable loss rate must be zero; we don't have a kid to waste. This effort will require the best of our collective head, hearts, and hands. This is our chance to leave a legacy; our "bite at the apple."

We are in a unique position and have an amazing opportunity to make a lasting difference through the mission work of public education. There is no more important work on the planet, and we have the privilege of doing it. We must become expert communicators and passionate supporters of the vision. We must know when to encourage, cajole, demand, "re-boot," support, learn, unlearn, and celebrate. We must be unafraid, unashamed, and apologetic in our approach. Finally, we must be unrelenting in our resolve.

Together, we can make masscustomized systemic reform a reality. I look forward to one-day "looking back" and saying, "Look at the difference we made for kids."

INFRASTRUCTURE NEEDS & TECHNOLOGY ANSWERS TO ADDRESS: THINK: Content Google, Bing, Wikipedia Curriculum & Instruction BlackBoard, Moodle iTunes, MOOCs Online Learning Accessing the digital environment Netbooks, iPad Record-keeping & reporting ATT/Verizon Microsoft Calendar, Scheduling Google Calendar, iCal Electronic Portfolios YouTube Tracking Students Walmart bar code system Profiling of styles and interests Amazon Student & Teacher Networking Facebook Almost Anything... Apple/Droid APPS

APPENDIX 1.

The Educated Child (Spheres of Living)

By studying and synthesizing the work of some of the best thinkers of our time, we have developed a portrait of the educated child around what are called "Spheres of Living." We are about more than simply preparing kids for jobs or getting them into college. We are about preparing them for a life that is defined within the following spheres: learner, civic, cultural, economic, and personal. Each Sphere includes a list of descriptors that define the aspects of life within that sphere. The Spheres of Living are represented graphically. The narrative describes in detail the indicators within each of the Sphere of Living.

LEARNER

Students must know how to learn. The educated child is curious about new things. She has the confidence to be self-directed in her approach to learning. The educated child knows how to acquire quality information and is able to synthesize information from multiple sources. She uses what she has learned to fuel her passion for making a greater contribution in work, personal, and social endeavors.

CIVIC

Students need to be prepared to contribute as citizens within a community. The educated child is engaged in community service as a steward of community traditions and mores. The educated child upholds positions of authority and influence by embracing the ethical high ground. The educated child, because of his contributions, makes his community a better place to live and work.

CULTURAL

Students need to understand the world and its inhabitants. The educated child is enlightened in his understanding of differing worldviews. Humanistic in his treatment of others, the educated child demonstrates respect for those different from himself by practicing empathy and endeavoring to understand multiple points of view. The human condition contains powerful emotions that are not easily represented in words. The educated child explores his understanding of emotion through the aesthetic experience and uses this understanding to build empathic connections with those who are different from him.

ECONOMIC

Students need to be prepared for a life of work. The educated child is a producer and is engaged in work about which she is passionate. The educated child demonstrates a work ethic and understands the importance of serving the greater good, placing the needs of others before the needs of self. The educated child seeks ways to make significant contributions to her field of work. She also has the skills to evaluate goods and services in order to make quality economic decisions.

PERSONAL

The educated child has a strong sense of self. She maintains a sense of overall wellness by nourishing herself mentally, physically, socially, and emotionally. The educated child develops and maintains healthy relationships through empathic connections. She is reflective and balanced in her approach to life and realizes that her talents are gifts that come with responsibility. In this sense, the educated child is spiritual.

By understanding the educated child through the Spheres of Living, we are doing more than preparing students to make a living; we are preparing them to make a life.



APPENDIX 2.



21st Century Skills

CONNECTOR

COMMUNICATE

Being able to speak clearly, write succinctly, listen intently, and use appropriate body language are not new skills, but they remain as relevant and critical in the 21st century as they have always been. It's about using these skills to build honest, open, and trustworthy relationships through authentic communication.

COLLABORATE

The word collaborate is derived from the concept of co-labor. Learners need to offer their best, understand the talents of those around them, and bring out the best in themselves and others in working and social relationships.

PERSPECTIVE TAKING

Empathy is endeavoring to walk in someone else's shoes and see things from their point of view. By developing empathy, learners can understand the perspective of others to better comprehend their thinking, intentions, emotions, and motivations.

SOLVER

MANAGING DIGITAL INFORMATION

Information is no longer scarce. In the digital age, we have access to information anywhere, anytime. Learners need to understand how to wade through massive amounts of information, discern quality, and validate its legitimacy. Learners also need to know how to synthesize information and leverage it to make decisions and get things done.

COMPLEX PATTERN AND RELATIONSHIP RECOGNITION

Subtlety and nuance are important in this domain. Learners need to be able to manage seemingly disparate information and data to find emerging themes that lead to novel solutions.

DIVERGENT THINKING

Learners need to understand how to consider multiple perspectives and points of view without judgment when making important decisions. Thinking critically and deeply, and considering all perspectives will allow learners to arrive at sound decisions, rather than being persuaded by the loudest voices or settling for the path of least resistance.

CONTRIBUTOR CURIOUS SELF-STARTER

As Tom Freidman says, there's nothing more powerful than a curious kid. Learners need to be curious about the world around them, and be able to initiate self-directed discovery as owners of their own lifelong learning.

GRIT

Learners need to develop a growth mindset. No matter how smart or talented you are, there will always be someone smarter or more talented. You won't always place first, or be recognized for your talents. At times you will give your best and it will go unnoticed. If you are alive, you will experience disappointment, rejection, and failure. Grit is about getting up after you've been knocked down. Learners need to understand: It's not about the "setback," it's about the "getback!"

SERVING A LARGER CAUSE

We all want to do important work. Contributing to a greater cause is intrinsically satisfying and gives life purpose and meaning. Serving others enables us to be the best version of ourselves. Learners need the opportunity to discover ways to use their talents, passions, and humanity and make their unique contributions to the world.

This is the first in a series of essays designed to provide a framework for dialogue as, together, we craft the future of public education in Hamburg. Each essay is designed to highlight a particular aspect of education, and discuss how we can move forward to provide a future-focused, personalized learning plan for **every child**, **without exception**. We are fully committed to helping our kids become the best version of themselves, so that they may make their contributions to the world and live lives of significance and meaning.

HAMBURG AREA SCHOOL DISTRICT

701 WINDSOR STREET HAMBURG, PA 19526 PHONE: 610–562–2241

FAX: 610-562-2634

