REDESIGNING MONTANA’S EDUCATION SYSTEM FOR A CHANGING GLOBAL ECONOMY

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A Disruptive Analogy to Start…. 

Often the current market leader is the last to see how the context has changed:

• Sears, K-Mart, Walmart, Target, Amazon and a change in how we buy things

• As recently as the 1990s, Sears was still the largest retailer in the U.S.

• Competition from K-Mart, Walmart and Target in the old paradigm

• Amazon recognizes the changing context and anticipates the new paradigm

• Walmart and Target adapted, Sears and K-Mart did not
Why Do We Have the System We Have?

The current education system has its roots in the turn of the century – The 20th Century!

- Prepared workers for a burgeoning assembly line factory model
- Assimilated immigrants into American culture
- Provided widespread basic literacy and numeracy
- Critical thinking necessary for only a select percentage
- Leveraged lessons from across Europe
How Has the Current System Performed?

Actually, quite well…for a long period of time

- For almost a century, the U.S. led the world in education attainment and quality
- Drove the biggest economy in the history of the world to ever new heights
- Fostered an explosion of the middle class
- Backbone of a stable democracy
- Production engine that helped win 2 world wars
80’s, 90’s and 00’s: Global Economic Change

So what happened?

Low wage competition
- Low skill
- High skill
- All skill levels

Automation of jobs involving routine work

Vast extinction of low-skill, routine work jobs in high-wage countries
What We Spent, What We Got for It

*Revised assessment format
What We Spent; What We Got For It

Per Pupil Spending and NAEP 12 Grade Reading Scores, 1971 to 2012

*Revised assessment format
## Mean (Average) Household Income by Quintile and Top 5%

<table>
<thead>
<tr>
<th>Household Segment</th>
<th>2019 Mean Income</th>
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</thead>
<tbody>
<tr>
<td>Top 5%</td>
<td>$451,122</td>
</tr>
<tr>
<td>Top Quintile</td>
<td>$254,499</td>
</tr>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; Quintile</td>
<td>$111,112</td>
</tr>
<tr>
<td>Middle Quintile</td>
<td>$68,938</td>
</tr>
<tr>
<td>4&lt;sup&gt;th&lt;/sup&gt; Quintile</td>
<td>$40,652</td>
</tr>
<tr>
<td>Lowest Quintile</td>
<td>$15,286</td>
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</table>
2013, Frey and Osborne conclude that 47% of U.S. jobs could be automated with existing equipment.

2017, McKinsey and Co. conclude that ~50% of global work activities can be automated with currently available equipment.

Demand for high-wage [high-skill] occupations will grow, while demand for middle-wage [middle-skill] occupations will decline.
40 years ago, there were plenty of jobs in high wage countries for high school graduates who were reasonably literate in language and mathematics.

Today, there are plenty of people in low-wage countries who are just as literate and plenty of machines that can do the work requiring that level of basic literacy that will do the work for much less.

New jobs will be created, but most of those jobs will require not just retraining, but a much higher and deeper level of education as well as targeted technical training.

Nations that fail to educate their students to levels of education previously enjoyed only by their elites will face increasing income inequality and decreasing political stability.

The forces at work are moving with increasing speed.
To What Extent is this True in Montana?

From Montana Department of Labor and Industry: “Increasing consumer demand coupled with a shortage of available workers led to more job openings remaining unfilled, even after businesses made 27,000 hires during August.”
Montana’s Aging Population

Population > 65 has been growing, but the population < 65 has been relatively flat since 2000.

Proportion of children expected to shrink as the state population is expected to grow around 1% per year.

20% of Montana’s workforce will retire in the next 10 years.
Can Montanan’s Fill the Jobs
OF A FLOURISHING, HIGH-TECH INDUSTRY?

- Defined by BBER as “firms that make or sell high tech products, provide professional services or consulting related to high tech, conduct e-commerce, or engage in manufacturing using skilled labor”
- These jobs pay 59% more than average state earnings and raise wages 0.8% faster than the state average
- Forecast employment and revenue gains 7x higher than statewide growth rates
- In 2019, high-tech firms grew 9x faster than other sectors, generating $2.5 billion in revenues (an all-time high)
- **But as skill needs become more sophisticated, will Montanan’s be able to continue to do the jobs needed?**
But it’s about much more than economics …

1. Morality and ethics
2. Ability to deal as citizens with a wide range of highly complex existential issues
3. Much fuller development of those qualities that make us fully human
4. Ability to interact with a broad range of people all over the globe
5. Capacity and desire to preserve and defend freedom and democracy
So…What Do Young People Need to Compete in an A.I. World?

- Deep understanding of the core concepts underlying the disciplines—the big ideas
- Ability to apply those concepts and ideas to a wide range of practical problems
- Full range of intrapersonal and interpersonal skills
- The moral and ethical grounding needed to make wise decisions
Potential Solutions - How the US Responded

REFORM AGENDA SINCE 1970’S

- More money (more than doubled over a period of 20 years)
- Lower class size
- School competition (charters and vouchers)
- Technology
- Tough test-based teacher-accountability systems
Our Competitors Had a Different Analysis

- Rather than modeling their education system on a factory model, they modeled it on a professional working environment.
- They started with the end in mind.
- They analyzed their context and the global context.
- They designed their entire education system as an engineer would to get the results they wanted.
Our Competitors Had a Different Analysis

Did not double down on the old model (inexpensive teachers; low standards); that model is designed to produce majority of graduates with little more than an 8th grade level of literacy

Knew the jobs available to them would rapidly decline

Needed to provide a world-class education to every single student - equitably and efficiently

All of that required a whole new model
Their Model vs. Ours

THE 2018 PISA RESULTS

• In reading…
  • 8 systems outscored the U.S.
  • 11 systems were statistically tied with the U.S.
  • 57 systems scored worse than the U.S.

• In mathematics…
  • 30 systems outscored the U.S.
  • 8 systems were statistically tied with the U.S.
  • 39 systems scored worse than the U.S.

• In science…
  • 11 systems outscored the U.S.
  • 11 systems were statistically tied with the U.S.
  • 55 systems scored worse than the U.S.

Source: OECD
In mathematics performance, average 15-year-old US students are more than a year behind students from the top-performing countries. Students in Hong Kong and Singapore are between 2.5 and 3 full years ahead of average US students in math while Chinese students are nearly four full years ahead of US students.

Montana ranks just slightly above national average on NAEP, so how does this suggest Montana would compare at a global level?
The NCEE Blueprint
Effective Teachers and Principals
Effective Teachers and Principals

- Recruitment of a diverse and talented teaching profession with incentives to stay
- Teacher preparation and induction that provide a strong foundation in content, pedagogy, and action research
- Educator career progression that supports and rewards the development and sharing of expertise
- Schools organized so teachers support one another to get better and to improve the whole school
- Leadership development for principals to lead schools and systems effectively
Rigorous and Adaptive Learning System
Rigorous and Adaptive Learning System

- Preschool aligned to K-12 to ensure all are ready to learn
- Engaging curriculum that promotes deep understanding and assessment that measures the knowledge and skills students need to succeed
- Early identification of struggling learners, and ongoing support and extra time to ensure they meet and exceed standards
- Gateway at the end of compulsory education that leads to high-quality options
- State-of-the-art CTE programs that credential students for jobs of the future
Equitable Foundation of Supports
Equitable Foundation of Supports

Pre- and post-natal financial and parenting support for new and expectant families

Financial, health and social services, and high-quality child-care for young children and families

Schools coordinate access to the health, mental health, social services and supports students need to be successful
Coherent and Aligned Governance
Coherent and Aligned Governance

Highly capable, strategic, and coordinated leadership at all levels of the system

Accountability systems with incentives and supports to perform well and innovate to reach strategic priorities

Financial systems that distribute resources equitably and efficiently

Ongoing benchmarking of successful systems to inform strategies
Questions:

- What is driving the recent teacher shortages across the country and here in Montana?

- Does Montana’s approach to assessment incentivize the teaching and learning necessary to develop 21st century skills?

- Despite some outliers on both ends, why do charter schools perform similarly to traditional public schools?

- Do we need to aim at different targets? Can we?