Iowa's Education Blueprint:
Can It Create a Learning System for Iowa to Lead in the Innovation Age?

A Response to and Recommendation for Improving Upon the Proposed Iowa Blueprint

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October 24, 2011

Executive Summary

Iowa's proposed Education Blueprint has created much needed conversation, debate, and discussion. It contains some progressive, interesting, and hopeful ideas for moving Iowa education forward. Despite these positives, the blueprint is fundamentally flawed by the inadequate vision it outlines and the muddled understanding and application of systems theory it uses.

The Innovation Age is upon us requiring Iowans to completely re-think and re-prioritize the education we provide to the future leaders and doers of our state. The United States created the greatest Industrial Age public education system in the world by using the best systems thinking of the time – the factory/machine model. The results were phenomenal: America became the greatest economic and military superpower in the world; and Iowans led in creating high-performing schools for that world.

Today, America faces a set of daunting, "wicked" problems that cannot be solved by applying the systems thinking and methodologies of the past. Iowa must lead once again by redesigning the very foundations of our learning system to meet the new realities of the Innovation Age using more appropriate and relevant systems thinking methodology.

Getting "on par" with other nations has never been an American ideal. We have always been the trailblazers and we must once again blaze a new trail, not by focusing on creating a more improved vehicle like "world-class schools" but by forging a very new vision like, "unfolding the potential of every child." This paper asks and provides preliminary answers and actions to the question: What would a learning system that produced the unfolding of every child's potential look like? The answers to this question will define the structures and processes needed to redesign the "school" we want to create.

Iowa must develop a rationale and roadmap for redesigning schools through the application of today's best systems thinking – the only type of thinking equipped to deal with the set of wicked problems we face. By utilizing the best organizational thinking of the day, we can re-position and re-conceptualize the wonderful ideas of the blueprint into actionable items that methodically create and define what a learning system looks like for the Innovation Age rather than simply "getting on par" with other nations.

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Preface

On October 3rd, the Governor of Iowa, the honorable Terry E. Branstad, and the Iowa Director of Education, Dr. Jason Glass, along with co-authors Linda Fandel and Byron Darnall, unveiled Iowa's Education Blueprint. The blueprint, entitled, "One Unshakable Vision: World Class Schools for Iowa" details a "comprehensive vision that can put Iowa's schools on par with the top schools in the world" (State of Iowa, 2011, p. 3) and hailed by the authors as "arguably unmatched in scope by anything else attempted in the United States" (State of Iowa, 2011, p. 15). The blueprint was introduced three months ahead of the upcoming Iowa Legislative session in order that educators, business and community leaders, parents, students and the public at large could provide "feedback to improve these draft recommendations" (State of Iowa, 2011, p. 15) and drive policy moving forward.

First off, our Governor and the newly appointed Director of Education and his staff are to be recognized for taking on the critical and difficult task of transforming our schools. I have met and gotten to know Dr. Glass personally and find him to be a caring, open, honest, bright educator who clearly understands the need to transform to a new model of education. Iowa has a history of having progressive, forward thinking Directors – all of whom I've admired both for their intelligence and their moxie. Such a position is fraught with difficulties too many to mention here – certainly not a position I envy or to which I aspire. Such focus, effort, and attention to doing what they feel is best is not taken lightly by me.

My review and response to the Blueprint should not be viewed in any way, shape, or form as a criticism of the people behind it. Asking for and openly receiving feedback is, in itself, a bold move exposing these authors to all sorts of criticism both fair and unfair. Anyone making this a personal attack commits a shameful act of cowardice and small-mindedness. Public debate, discourse, and openness to consider and integrate viewpoints for creating a great plan does more for improving our education system than any policy, law, lecture, or mandate ever will. As Margaret Mead once said, "Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has." I, for one, want to be one of those thoughtful, committed citizens.

Author's Assumptions

In order for a recommendation and response to be appropriately evaluated and understood one must frame the larger context by exposing their own biases and assumptions. Mine is unabashedly from the lens of a social systems scientist and designer. In short, my assumptions are as follows:

- That the world is in a state of massive change is obvious. That the world is undergoing a dramatic shift both in the way we view the world and in the way we try to make sense of it is not so obvious. Our traditional views of both what systems are and the way in which we attempt to understand them are outdated and unable to help us dissolve the interacting set of problems we face. As Stafford Beer once said, "Acceptable *ideas* are *competent* no more and *competent ideas* are not yet acceptable."

- A majority of business and education leaders do not yet fully comprehend or understand the implication of their world and systems view. Since most formal education provides little assistance in helping understand the implications of our implicit world views, most leaders are ill-equipped to deal with the problems they face. To say, "I'm a system's thinker" means nothing today. One can be a systems thinker with a mechanical, biological, or socio-cultural (3rd generation system thinking) framework of the world. While the first two are relatively compatible and our culture's dominant view of the world for the past 200 years, the third is not. Not understanding ones own systems thinking paradigm and the operating assumptions comprising it is a major barrier in our collective ability to create the future we want; a consequence of which is our selection of the seemingly best options from our current paradigms. As a perpetual learner in this endeavor I have developed a strong understanding of 3rd generation systems thinking. That learning has dramatically and forever changed how I view the world and the actions necessary to get us out of our current set of problems. More importantly, the growing research and realities are demonstrating repeatedly the validity of this emerging world-view in solving seemingly intractable problems.

- Dealing with our existing set of problems by extrapolating the past and projecting it into the future or being constrained by "current best thinking," "follow the research," and "the public isn't ready for such a paradigm shift" won't get us where we need to go. As Zander reminds us, "any accepted model for doing things comes with an implicit set of rules, and these rules govern our behavior just a surely as the rules of baseball govern the movements of the players on the field." (Zander & Zander, 2000, p. 58).

- Democracies and markets typically do not select the best solutions – they choose the most compatible, *satisfying* solutions. This produces a tendency to reproduce the same set of non-solutions again and again. (Gharajedaghi, 2011b, p. 52).

- Design is at the heart of human development. It is important to remember that everything we touch and see has been designed. As Gharajedaghi tells us:

  > "The unique ability of human beings to create images is what design thinking is all about. In this context, the distinct advantage of design thinking is to produce new alternatives. It goes beyond default solutions by looking for new exciting possibilities. It is not about selecting the "best" from the existing set of alternatives. The choices in the existing set usually share one of more properties based on an explicit or implicit set of assumptions or constraints produced by the actors' previous experiences in similar situations" (Gharajedaghi, 2011b, pp. 134-138)

- The factory-model of education, which helped to make America the greatest economic and military superpower in the history of the world, is completely incompatible with the new realities we face. Nearly all the research looked at and the solutions proposed by that research reside in the confines of a paradigm we are trying to escape. Reject it all? Certainly not. Just use with extreme caution. EXTREME caution.

- Designers design backward from where they ideally want to be, right now, and not forward to where they want to be in the future. Backward planning from a preferred future reduces the number of alternative paths they must consider and the destination is defined by where they want to be *now*. If they do not know

where they want to be, ideally, right now, they cannot possibly know what they should do next. (Ackoff, 1999).

- Any design or plan that does not clearly demonstrate the inter-relationships of the design elements is doomed to unsatisfactory results or failure. The linear cause-effect thinking dominating our current culture paralyzes our ability to see how interdependent variables interact on a solution set.

- You cannot touch a school – or any other organization – without touching the culture of the surrounding environment. For schools, this is the community. Relationships may be all there is to reality and, as such, improvement lies more in the culture and context within which someone operates than in the ability or performance of an individual actor. Good individuals in great cultures outperform great individuals in poor cultures. Culture, not individual "greatness" defines what a system produces.

The above set of assumptions create the lens from which I view the proposed Blueprint. **There are many progressive, interesting and hopeful ideas in the Blueprint; ones which I believe we need to begin immediately trying to figure out. My concerns are not so much the specifics, but that the proposed actions of the Blueprint do not create a clear and compelling picture of the future we desire for our children. Despite its claim, the Blueprint does not represent an integrated solution set designed specifically to create something new.** My greatest fear is enacting a plan taking incredible resources only to see it become another "great effort" producing nothing substantively different because of a few fatal flaws and assumptions about how social systems are designed and function.

Context and the Problems We Face

The context Iowa's education system is a part of today is unlike any ever seen before. We face enormous challenges economically, socially, environmentally, and politically both inside America and abroad. Today we face what social system scientists call "wicked problems." As Susan Leddick explains, "Wickedness is not a matter of difficulty, but a matter of the inadequacy of traditional solutions." (CESA 6, 2010, p. 2). John Camillus explained wicked problems in the Harvard Business Review:

"A wicked problem has innumerable causes, is tough to describe, and doesn't have a right answer. . . They're the opposite of hard but ordinary problems, which people can solve in a finite time period by applying standard techniques. Not only do conventional processes fail to tackle wicked problems, but they may exacerbate situations by generating undesirable consequences." (Camillus, 2088, p. 1).

Today we are tasked with re-creating schools from a highly successful industrial-age model to one that can lead America into the Innovation Age. As such, we face wicked and not simply hard problems. Our problems and issues come in batches and bunches. They are ones we have never seen before and therefore have no known solutions. We can't simply provide a nice list and solve them one-at-a-time, checking them off as we go. The only solution to wicked problems is to redesign. "Only by reconfiguring and repurposing the parts of the existing system, by challenging assumptions that lock the future inside the past, by tapping the creativity and inventiveness of people committed to success" can we generate the novel solutions wicked problems demand. (CESA 6, 2010, p. 3). A quick "map of the interacting problems" provides a visual of the problems we face and why the application of largely discrete solutions cannot extract us from this mess:

The set of "wicked" problems education faces.
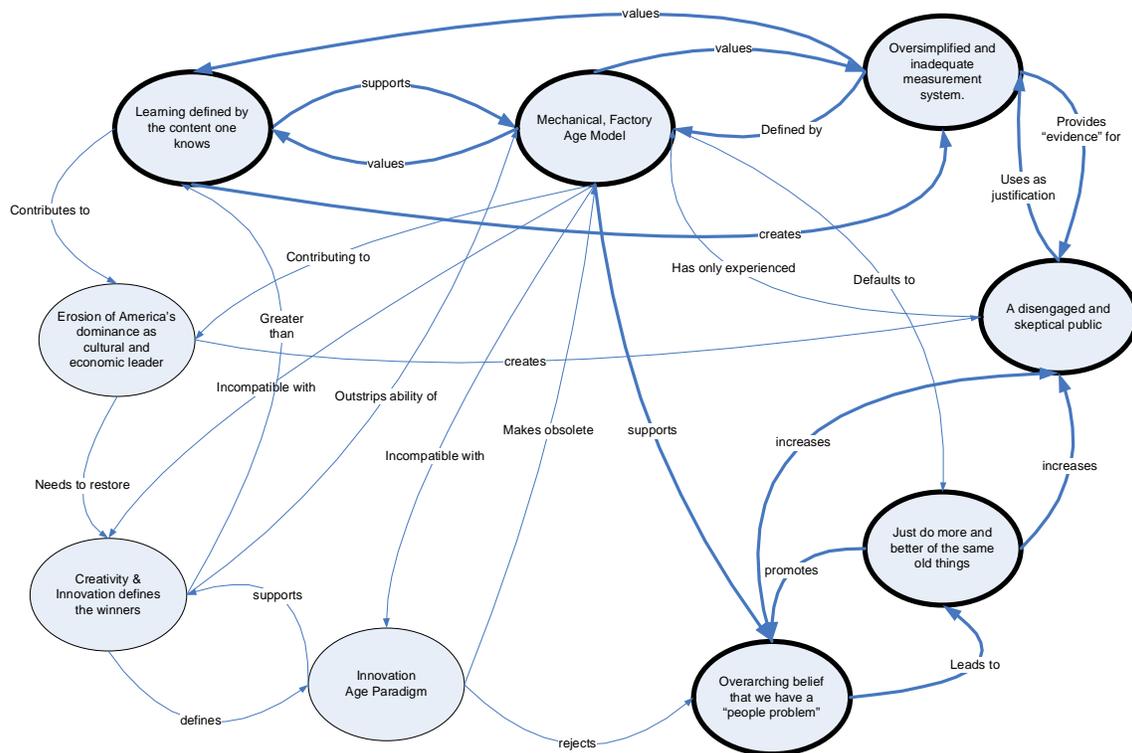
Figure 1. Map of the wicked problems we face.

Problems such as the ones illustrated above require dealing with the complexity of the interactions of multiple variables. Note how the bold elements work together to reinforce one another and which hold our school culture and performance largely static. You can't "fix" one of the issues without dealing with them as a set. Let's look at the more traditional approach to problem solving and one containing implicit factory-age assumptions. Here we have one of the basic elements of the blueprint. It can be represented as follows:

Mechanical Orientation: Linear cause/effect
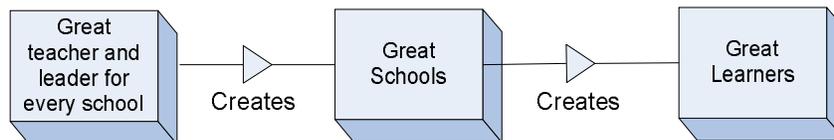
To put this in context, such an approach is founded on the basic mechanical assumption of:

Figure 2: A Mechanical Orientation to Problem Solving

Note the implicit assumptions at work – that the problem is largely a people problem. If we just had a great teacher in every classroom, we would have great schools which would produce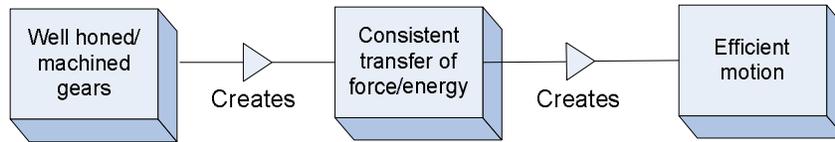 great learning. At its foundation, this view of problem solving assumes that the whole is nothing but a sum of the parts. Contrast this cause/effect diagram with one steeped in an understanding of how complex social systems function:

Socio-Cultural Orientation: Non-linear, circular cause/effect
Interactions of the parts, not the individual performance of each part, defines the system's output.
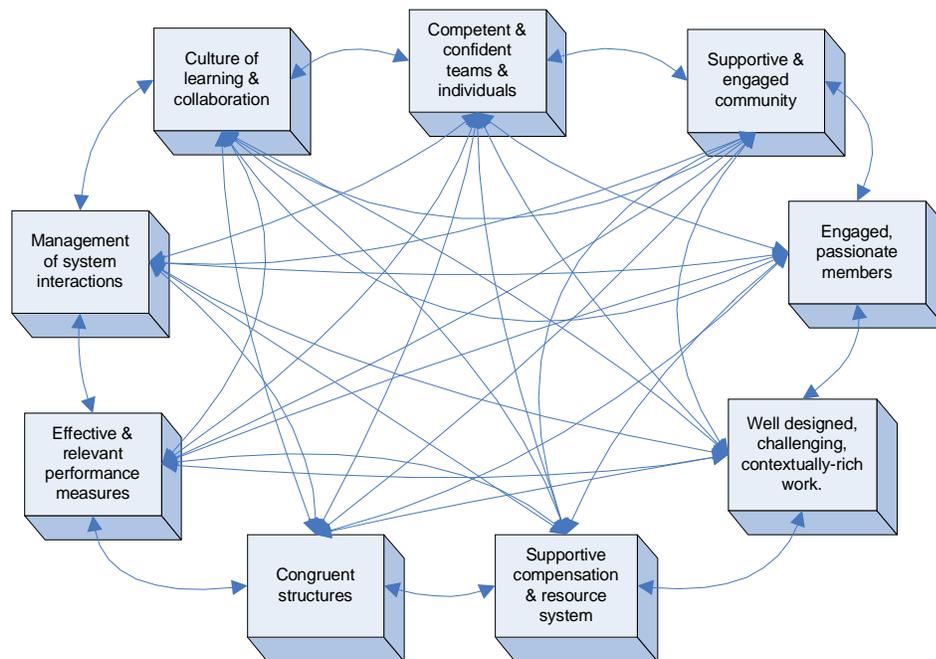
Figure 3: The interaction and cause/effect loops of a socio-cultural system.

It becomes quite apparent that simple cause/effect, implement this, get that, approach to social system design is fraught with problems. Approaching any of the above variables one-at-a-time or a few-at-a-time will not create the desired effect. In fact, working on one variable has significant consequences on the relevancy, fit, and performance of all the others. This is why design using a new theory and methodology of systems is essential to our ability to create the future we desire.

Where We Stand Today

American education is much maligned and, when ranked against other countries on standardized, moment-in-time tests, we perform poorly: #17 in reading, #31 in math, and #23 in science (Shepherd, 2010). However, on different and I argue equally important scales, the United States ranks well: #2 in creativity, #3 in patents, and #1 in royalties and licensing exports. Additionally, we rank #8 in human development, #5 in global competitiveness, #7 in wealth, #12 in science research, and #16 in net immigration (which speaks to the diversity of the population being educated). (Shepherd, 2010), (*Worldmapper: The World as You've Never Seen It*, 2011), (World Economic Forum, 2011). Creativity and innovation, as evidenced by patenting and licensing, are "the keys to wealth and prosperity." (Business Insider, 2011, p. 1).

It is interesting to note the world leader in reading, math, and science scores, Shanghai, China, does not appear *anywhere* in the top scores related to creativity, patents, royalties and license fees, human development, global competitiveness, projected wealth, science research, or net immigration. Korea, #2, only appears in patents (#2) and projected wealth (#6). Finland, #3, who adopted a very different path to educational reform than the United States, does well with creativity (#3), science research (#4), and global competitiveness (#4) albeit with a fairly homogenous population. (Shepherd, 2010), (*Worldmapper: The World as You've Never Seen It*, 2011), (World Economic Forum, 2011).

Based on this wider set of data, assuming a correlation between test scores and creativity and innovation is tenuous at best and disingenuous at worst. Simple correlations of test scores with quality education is a prime example of inaccurately framing wicked problems as merely hard ones. We face a much more daunting task than simply raising reading, math, and science scores; we must rethink and redesign the entire system we call "school" to ensure that everyone is "learned" in the most comprehensive sense.

> **America has NEVER looked at another nation and said to itself, "Gee, we should try to catch up to them."**

A primary focus on "chasing down" these countries may not be in our greatest interest. Neither is giving ourselves a pass by looking at the above and saying, "Hey,

we're near the top on those other important measures so our system must be okay." We cannot maintain our position at the top of the creativity and innovation mountain by simply doing more of the same. Ken Robinson and others make a compelling argument that schools, in fact, destroy creativity. (Robinson, 2006). We must get more and more people to retain their love of learning and inquiry and this includes getting better at core competencies like reading, math and science. While that is necessary, it is not sufficient. To that end, we must remember that the way one keeps score defines the game. We must develop "scoring systems" representing what we value. Continuing to focus on a small set, however easy they appear to be to measure, is a road to disaster.

> "Relevancy is the most important concern in selecting performance variables. Traditionally, the overriding concern has been with the accuracy of the measures. Because accurately measuring what we want has proven difficult, we have chosen to want what we can accurately measure. Unfortunately, the more accurately we measure the wrong criteria, the faster the road to disaster. We are much better off with an approximation of relevant variables than with precise measurement of the wrong ones." (Gharajedaghi, 2011b, p. 203).

International comparisons of narrowly defined learning outcomes as the primary or sole set of measures don't serve us particularly well for a myriad of reasons: 1) the comparisons are rarely apples-to-apples when factors other than the age of the test takers are considered; 2) they provide no blueprint or model for what we can do to improve those scores (save only giving the test to the same demographic taking them in other countries); 3) they don't represent a well-rounded picture of the impact of an educated citizenry and, most importantly; 4) so what?

America has NEVER looked at another nation and said to itself, "Gee, we should try to catch up to them" In a world clearly dominated by the ability to be creative and innovative and in which America currently ranks in the top three in the world, why are we trying to catch up using a narrow paradigm we no longer want to be a part of? America is and always has been a trailblazer – forging ahead into the unknown to recreate itself and, as a result, leaving every other country in its wake. We created a school system perfect for an Industrial world, and we won – and won big. Today, we are faced with creating a learning system for the Innovation Age – an Age we are also well

equipped to define and lead if we so choose. Simply modifying or continuously improving upon a system of schooling largely understood to be obsolete seems a colossal waste of time and resources and, most importantly, will only serve to position us to be losers – big losers, in the emerging world economy. This is not an issue of leading educators and thinkers not understanding this reality, but that we haven't been able to escape the bonds of our outdated understanding of systems as they apply to organizations. Our approaches and plans largely ignore one of the most important principles of socio-cultural design: desire. Our vision, goals, and work must be grounded in desire and excitement. We must provide Americans with an exciting, challenging, and desirable picture of the future we want and need to create. Unless we do this, any effort at changing educational paradigms faces a nearly intractable set of cultural constraints and assumptions.

> **Our approaches and plans largely ignore one of the most important principles of socio-cultural design: desire**

In the early sixties, John F. Kennedy challenged us to put a man on the moon and return him safely in one decade when we didn't have the technological know-how to do so - and we did it. He didn't say, "Let's build world-class rockets in order to keep up with the Russians." In the language of my friend and colleague, Bridgette Wagoner, this would be a "clunk." (Wagoner, 2011). Instead, Kennedy's message was compelling, aggressive, and "out there." As a result, America created the solutions necessary to bring it to reality. Addressing the complete set of contextual variables and the set of problems we face means being bold and audacious in our vision. The emerging context and the implications for America demand such a goal and vision – a vision that creates an image of what we want to become. This, and only this, allows us to continually and systematically move closer to a new order. (Gharajedaghi, 2011b, p. 64).

Vision, not Vehicle

Let's start at the top. The blueprint's vision of "creating world-class schools for Iowa" is problematic. Such a vision assumes our end-game is great schools. I argue that this is not, in fact, our real vision. Rather, it is a vehicle we choose for accomplishing something much bigger: "To unfold the potential of every child." (Vollmer, 2010, p. 46). You might vehemently argue - it's the same thing! Unfortunately, it isn't. A world-class

car provides a great ride, but it in no way assures a particular or preferred destination. If I don't clearly know where I want to go, the world-class car means nothing. In fact, it may be the wrong vehicle for the destination I choose. We must not mistake a structure (world-class schools) for a function (unfold the potential of every child).

Our current system of education, on the other hand, is based upon a very clear vision. In 1781, in his *Notes on the state of Virginia*, Thomas Jefferson laid out the vision for America's schools, which would drive all the structures and processes to follow – right up to this moment in time. His blueprint for education, his preferred future, was developed, expanded, institutionalized, professionalized, and continues to dominate our education system: **"To rake the genius from the rubbish."** (Vollmer, 2010, p. 42). These seven words outlined a vision enabling America to put in place structures and processes that projected it to world-class. To accomplish this, Jefferson instituted public education choosing a vehicle called "school" to effectively determine the "learned" from the "laborer." This vision was completely compatible with not only the existing order, but the soon-to-emerge Industrial Revolution.

Americans are nothing if not practical, and this approach to education was extremely practical. We needed lots of laborers and a few scholars. Jefferson's vision helped sort out the "learned," as defined by a very narrow band of verbal/linguistic and logical/mathematical intelligence, from the "laborer." As the Industrial Revolution unfolded, Jefferson's vision remained apropos for America: find those people who could lead our great industries while creating a massive class of docile, compliant, and obedient workers who knew enough to function in society. Today, our challenge is very different. The Innovation Age we face is completely incompatible with previous social, educational, and economic realities. In short, we need a new vision and a new vehicle for achieving that vision.

A new vision like, **"to unfold the potential of every child"** is not only much more practical for continuing to thrive in the world we face but is also compatible with our moral sensibilities. Our practical side and moral side have finally converged! A vision of world-class schools, while it may or may not imply unfolding the potential of every child, leaves a lot of ambiguity. Whose definition of "world-class?" Based upon what? Creating better workers? More artists? Better rankings on international

comparisons on school-based measures? A new and improved sort and select system? Winning a game defined by others? It is imperative that we create an exciting and clarifying vision and then relentlessly pursue that vision to make Iowa the creator and definer of the future. In short, we must define the new game.

A vision including the word "school" comes with 200 years of baggage; baggage filled with a strong set of beliefs and assumptions about what school is. As my friend, Karl Cassell, says, "Each time we communicate, we articulate the future we want to create." (Cassell, 2010). The language we use – the words we choose - is a critical element in this work. Words are shorthand for concepts. If we use words too history-laden, we make it easy for people to default to previous mental models. Some argue a change is more approachable when you use words more familiar and less revolutionary. I openly reject this notion. Such an approach only works when you believe the existing set of parameters and mental models are capable of being improved to meet the emerging demands. This is clearly not the case today.

Words carry important conceptual ideas. When we say we are working together to "transform schools" (State of Iowa, 2011, p. 1) followed by "in need of a major remodel" (State of Iowa, 2011, p. 2) we are confusing two very distinct ideas and softening the urgency to transform. By focusing on unfolding the potential of every child we can begin to make a very cogent argument for why we must redesign our schools and not simply remodel them. The two words conjure up very different conceptual fields of thinking. As Kitula King'ei noted, "Language is never simply a neutral instrument to convey meaning, but rather a culturally subjective system reflecting peoples' world view. Language symbolizes the common beliefs and psychological make-up of the community from which it springs" (King'ei, 1999). If our shared belief remains in the realm of "remodel," we are destined to seek solutions largely constrained by "what is" today.

To unfold the potential of every child. What if we did that? Would our country and the people in it thrive? Would any other country in the world be able to match our capacity to adapt and develop, no matter their school ranking? Would we be unnecessarily constrained by previous designs and our past while at the same time being informed by them? Would we stand a better chance of getting the citizens of Iowa to understand, trust, permit and support us in redesigning schools to bring this exciting

vision into being? Would it help to instill excitement, passion, and engagement in the citizenry to unite and forge a new reality? I certainly think so.

Designing Our Preferred Future

This vision leads to a simple question: what would it look like if we designed and created learning systems that unfolded the potential of every child? Creating this picture requires design thinking. Design is qualitatively different from continuous improvement and remodeling strategies. Design is concerned with how things ought to be, not with how things are. It is about moving from where you want to be back to where you are so you can develop an effective path "from here to there." Since system performance is essentially design driven, it is only in design or redesign that we can achieve order-of-magnitude system change – a 10x improvement. Design, not continuous improvement, is the instrument of innovation. (Gharajedaghi, 2011b, pp. 134-138).

Design thinking, often called "clean sheet design" allows us to go "beyond default solutions by looking for new and exciting possibilities. It is not about selecting the 'best' from the existing set of alternatives. The choices in the existing set usually share one or more properties based on an explicit or implicit set of assumption or constraints." (Gharajedaghi, 2011b, p. 134). Design thinking allows us to challenge existing assumptions about the way things are and "represents a qualitative change that includes the notion of beauty and desirability" – an exciting and hopeful future that we want to create. (Gharajedaghi, 2011b, p. 135).

Design thinking is not be confused with an implementation plan. The intent of defining and describing the preferred future is to create an exciting vision and increase the desire to do the difficult work involved in bringing it into being. It is not intended to be implemented right away, nor is it something we can have in the short-term. That is the work of successive approximation. (Gharajedaghi, 2011, p. 1). As Susan Leddick advises, "design what you want, implement what you can." (Leddick, susanleddk@pkrnet.com).

To craft such a vision we would need to answer not only the first question posed but sub-questions like:

- How would we organize both the adults and children to achieve our vision?
- What structures and processes would align themselves to this vision?
- What would adults do? Children? How would they interact?

- How would we know that we were achieving the vision?
- How would funding flow to make this happen?
- How would we ensure that everyone was engaged and moving forward to realize their potential?
- How would we dissolve conflict?
- How would we duplicate the power-to do across all actors in the system (rather than power-over)?
- Then, how do we educate the Iowa citizenry about the new vision and language when they grew up only knowing the past model?

Does the current blueprint provide the answers to these critical questions? On that I think it falls short. Certainly, some of the proposals in the Blueprint do and would help us create this sort of vision and might serve us well as potential first approximations towards our design, but many are simply improvements based upon what we already know, constrained by "what currently is" rather than what we truly want. While it represents a major improvement in our current factory-age system, it does not represent a first step towards a learning system specifically designed for the future upon us. A game-changing proposal must provide a compelling picture of a preferred future, and a first approximation set of solutions expressly designed to produce more desirable possibilities for that future. The design must represent a qualitative change in the system as a whole, one that creates the desire and excitement to forge ahead towards that future.

Challenging Assumptions & Moving Beyond "What Is"

Given what we know, and what the Blueprint hints at in some of its elements, the factory-model of schooling is not an appropriate or desirable model for realizing the vision of "unfolding the potential of every child." It is laden with structures and processes aligned with the Jeffersonian vision of education. If we truly had what we wanted, we would reject most, if not all, of the assumptions that drive our current model of school. The following table provides a comparison of some of the factory-age assumptions we should challenge and the emerging Innovation Age assumptions:

From Factory-Age Assumptions:	To Innovation Age Assumptions:
Organizing students by chronological age and assigning groups to specific teachers and/or courses ensures the best learning results.	Children learn at different rates and with different styles, and have varied interests, skills, and passions requiring access to a myriad of expert teaching teams and learning experiences to realize their greatest potential.
Isolating subjects and teaching them separate from other subjects creates deep and meaningful learning.	The interaction of academic content, knowledge processing, design, active demonstration of ability and competence, fine arts, health, and other enriching experiences are essential elements in a well rounded education.
Learning occurs best during school time, in the school building and from a teacher and happens for children at the same place and at the same time as their same-age peers.	Learning occurs everywhere and at any time and only after one has applied and "tried out" their new understanding in contextualized, rich, and dynamic situations.
Defining courses through a scope-and-sequence is the best way to organize the how and when students will experience teaching and content.	Learning is dynamic, non-linear and unpredictable. A balance of pre-knowledge and "need and desire to know" creates the strongest learning experiences.
The individual student is responsible for their success or failure in the system based upon their pre-determined aptitude and ability. Motivation to be compliant and progress along a tight and unwavering cycle time drives success.	Individual and collective intrinsic motivation and choice- of teachers and students - is the primary driver for improvement and success.
Reporting student learning through points, grades, tests, rankings, and credits is the most valid and reliable way to determine student learning and motivate students.	Learning doesn't yield to a set of numbers or letters. Assessments must enable students to clearly map a course for on-going learning and development. Intrinsic motivation is the learner's greatest motivation.
Great learners, especially those steeped in the knowledge of their discipline content, make the best teachers.	The best facilitators of learning are steeped in strong pedagogy about how people learn and have both the content knowledge and the understanding of how to apply content as a tool to increasing knowledge, understanding and wisdom.

From Factory-Age Assumptions:	To Innovation Age Assumptions:
Motivating and incentivizing the people in the system – teachers and students - is necessary to ensure performance and advance a learner's ability. Externally driven rewards and punishments is the best method for achieving compliance and engagement.	Desire – the intrinsic passion for learning - is as important if not more so than ability. Together they create powerful and lasting learning. Each child must retain their love of learning and the ability to continually learn and develop both during and after their formal educational experiences.
All students should be required to start and end their formal education at the same time and at the same pace. A single score – typically GPA – provides the best evidence of student ability and intelligence.	Students must exit school with a clearly defined and well demonstrated set of competencies, skills, and abilities that make them career, college, and community ready. When they enter and exit the system is dependent upon their readiness and motivation to do so.
The best system runs efficiently and seeks to reduce variation in processes. Students who do not learn at the same rate represent unwanted variation in the system, and must be diverted to different lines so as to not disrupt the flow of the system.	The learning system must ensure consistent quality of outputs rather than consistent application of inputs. The system must produce a variety of well-defined and consistent "ends" with a variety of "means" employed to ensure every child is successful.
Student desire to learn is relatively inconsequential to the desires and needs of the adults charged with providing an education.	Student desire and motivation is the cornerstone of the educational system. It is the adults job to connect that passion with meaningful learning experiences linked to valued and useful content.
The most important learning modalities and styles is that of classical education – verbal/linguistic and logical/mathematical. The other modalities can be taught, but only the classical disciplines will be used to evaluate a child's learning and the system's performance.	Human intelligence is wide and varied and multiple intelligences and perspectives must be encouraged and developed. Assessments and evaluations must support this large range of human intelligence and serve as the comprehensive measures of the system's performance.
Teachers are akin to blue-collar factory workers to be assigned prescribed tasks and procedures with an assigned group of students, who are the raw products, and determine their relative quality at the end of the process.	Teachers and students are white-collar professionals having the ability to exercise choice in achieving their ends and the system must support them in achieving those ends.
Principals are akin to plant managers and are to ensure smooth and efficient operations, including maintaining close supervision of line workers to ensure efficient and consistent operation of the school.	System leaders manage the interactions of the system to ensure it effectively delivers the desire outcomes and find efficiencies in shared services.

From Factory-Age Assumptions:	To Innovation Age Assumptions:
Literacy in reading, writing, and numeracy are important for the success of any learner.	Literacy in reading, writing, numeracy, technology, creativity, and problem solving are important for the success of any learner.
A safe and nurturing environment for school-aged children is a critical component in any quality learning system.	A safe and nurturing environment for school-aged children is a critical component in any quality learning system.
Schools are the social and intellectual hub of the communities they serve.	Schools are the social and intellectual hub of the communities they serve.
While parents often create unwanted variation in the system, the system needs parents and the community to support the work of the school.	Parents and the larger community must be active and engaged partners in learning and schools are not solely responsible for the social and economic well-being of children or society
Accountability to follow the prescribed curriculum and processes of school is essential for the efficient running of the school.	Accountability for meeting and exceeding rigorous learning targets based on high and reasonable expectations is essential for student success.

Figure 4: A comparison of factory-age and innovation age assumptions about learning and education.

Part of the task of designing an exciting vision for an Innovation Age learning system includes acknowledging, accepting, and/or rejecting the set of assumptions holding the current system in place. The above chart provides an important anchoring point for design, debate, implementation, and improvement of our new model. It is important to note that a few of the Factory-Age assumptions do remain valid today. This is not a categorical rejection of all our long-held assumptions. The majority of educators and others involved in trying to change education, including the authors of the blueprint, might agree the left column is no longer desirable. If we were to conduct a "clean sheet" design, they would not be a part of that design.

Examination of assumptions are critical because it is the operating assumptions that serve as DNA in a culture and is responsible for maintaining the status quo, generating recycled non-solutions, and rejecting efforts designed to alter the DNA of the culture. This is our greatest challenge – to design and bring to life a new system of learning designed to meet a new set of assumptions and desires.

An effective design of a preferred future for Iowa schools must answer the questions posed and the assumptions identified in earlier sections as a complementary set. They cannot be worked on one-at-a-time or a few put together as a package. We must appreciate the fact solutions come in sets and their interactions, not their individual

actions, produce the end result. Put another way, the whole of the design will produce properties the parts alone cannot produce. It is the emergent property of the whole that will create our Innovation Age learning system.

It is through this lens we can begin to determine the important step of approximating a design. For example, the beautiful idea of improving the mentoring and support of teachers in the Blueprint is unnecessarily constrained by our lack of a simultaneous plan for altering how we organize adults and children in school. If the structure of the school day were designed to support our desired set of operating assumptions, we would produce a model for mentoring individuals and teams that might look very different from those proposed within the existing system structure.

Creating Design Specifications

While it is optimal to give all stakeholders in a system an opportunity to identify their answers to the design questions, I pose several themes here to demonstrate the power of design specifications and the themes emerging from them. Taken collectively, they represent the beginning of an Idealized design of a preferred future. It is important to note creating a preferred future does not involve stating what one wants to get rid of but rather what one would have if they could have what they wanted. It assumes the current system was destroyed last night and the task is to create something new in its place. When a system is assumed to be destroyed, the problems with it are also destroyed, freeing us to create something new.

Having the benefit of taking several design teams through such a process and my on-going study of educational systems, I can provide some hints as to the themes typically emerging from such a process. Themes provide a more manageable picture of the desired state and help actors better understand what is needed. Given the questions and set of assumptions, we might see the following design themes:

- Students graduate only when they have successfully demonstrated key competencies across a variety of contexts and situations. The system measures what stakeholders value by creating and implementing assessments requiring students to demonstrate their skills and abilities in messy, contextualized situations and in seeking solutions to "wicked" problems. Content is a tool

used to produce important learning, understanding, and action rather than as a measure of what has been learned.

- A culture of learning permeates the system and improves the collective and individual performance of the actors inside and associated with it. The culture is collaborative, anchored in joint inquiry and discovery, innovative, risk-taking, understands and embraces error and mistakes as avenues to deeper learning, and uses the desire of the individuals in it to drive improvement, creativity, and results.

- The organization actively adapts its learning structures to meet changing conditions and contexts. The system is flexible, responsive and proactively develops and improves. Governance at all levels moves from "power-over" (micro-managing the parts) to "power-to" (macro-managing the interactions).

- An internal market economy drives system improvement and relevancy. Parents, students, and teachers have the power to choose their learning environment and those in that environment. Systems, groups, and/or individuals continually improve and act to provide new or improved solutions on behalf of those they serve ensuring the expectations and desired outcomes of the recipients are being met.

- Strong ties to community and business expands opportunities for multi-directional work and support of common goals and objectives. Teachers and students engage directly with and in the community and the community is directly involved in the work of ensuring every child is equipped with the competencies needed to be successful.

Creating Images of Possible Structures and Processes

From such a process, we can depict a basic outline of the desired design elements by showing them in such a way overtly demonstrating their inter-relatedness, since dealing with each one-at-a-time is problematic and undesirable. A diagram is then used to identify the "desired state" for each element and used to map out design approximations. The approximations are mapped to illustrate our actions and our emphasis, how those variables might co-produce results for each other, and as a basic measurement tool for marking our progress. Such a simple spider diagram might look as follows:

**Idealized Design for Iowa's Learning System for the Innovation
Age**
10/14/11 Pickering

**Competency-Based Learning System w/Multi-
Dimensional, Demonstration Based
Assessment System**

**Strong Community &
Business Understanding,
Trust, Permission, &
Support**

**A Culture of Innovation,
Creativity, Learning, &
Discovery**

**Outcome & Choice-
Driven Performance
Systems**
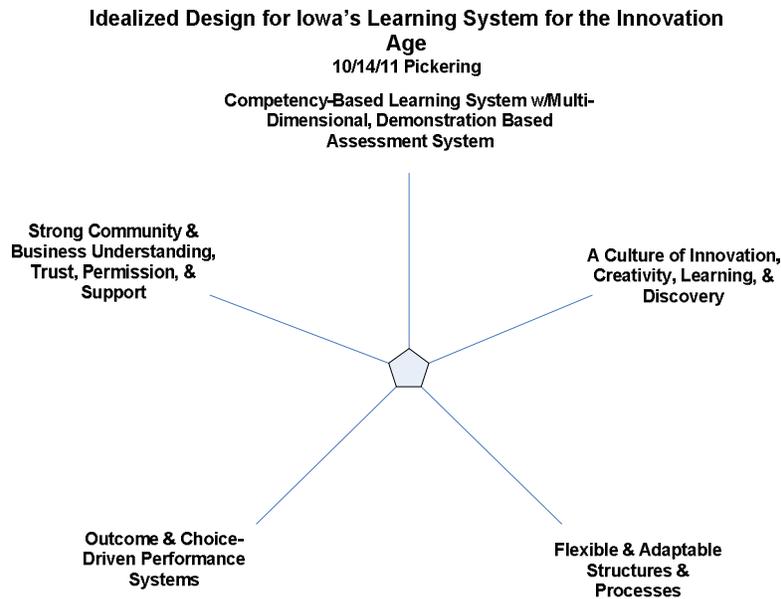
**Flexible & Adaptable
Structures &
Processes**

Figure 5: Idealized Design for Iowa's Learning System

It is this stage where we ask and answer important questions like: What would it look like if we had all the above acting in concert? What structures and processes would need to be in place to create a competency-based system in which learning, collaboration, inquiry and discovery permeated the culture of the system? What might be our integrated first approximation steps that purposefully drive us towards the vision?

Creating Symbolic Models of the Design

An important element of the design is creating models helping people begin to see what the design might look like, how those models help to advance not only the individual elements but, more importantly, how they are mutually supportive and reinforcing. Our communities and stakeholders need to understand and see how we create the desired state in all 5 of these areas simultaneously. Doing so provides the opportunity to design, build, test, and implement the elements in a variety of ways and contexts to learn what works best, what is sustainable, and what constraints stand in our way as we move forward.

The key role in this learning system is to "enable children to develop their interests" by "providing a setting in which the various internal motivations each child possesses can flourish into active pursuits. It is not the role of adults to attempt to replace the

motivations already present in children with others that the adults wish the children had." (Ackoff & Greenberg, 2008, p. 13)

As such, competency-based learning systems replace traditional courses, credits, hours, and grades. A competency-based system appreciates and builds on the basic human motivations of choice, excitement, and inquiry. As Shawn Cornally, a current teacher and leading educational thinker, describes:

"The amount of knowledge increases without bound. We're going to have to delve students into the world of how-to-figure-stuff-out in a much richer way. We're going to have to force students to go beyond Google's first page of hits, and really teach them to follow the narrative arc of an inquiry to the point where it results in something new that's worth sharing beyond the walls of their school building." (Cornally, 2011).

To have such a system means completely re-thinking traditional structures and processes around time, how adults and students interact, how students and students interact, how adults interact with one another, and how the community interacts with the school. As such, students are not solely organized by age but by interest and competence level with teams of teachers and other adults who can advance and support them as they learn critical concepts, skills and ideas through project and inquiry-based work requiring them to create, produce, and demonstrate learning in new and novel ways.

Rather than grades, "gateways" would serve as individual and system checkpoints moving students through learning experiences at their own pace. The system would monitor the progress of each student, addressing problems related to bottlenecks at the checkpoints and continually improving their structures and processes to advance students more quickly and effectively through the system. This ensures the system is producing students who can read – whether age 4 or 12 – without arbitrary and unrealistic markers like "by March of grade 3" or "by age 8." The schools' job is to ensure every child progresses through the gateways, including those who require intensive time and support to achieve those goals. Since children will pass through the established gateways at different times, at different rates, and in different ways, "falling behind" or being labeled "slow" begins to ebb. One student may quickly pass through mathematical gateways and more slowly through reading gateways than another.

Newly developed methodologies capture what students know and can do as they progress through the system and deepen and widen their understanding of the world. Teachers and other adults accelerate their own competence and confidence via a strong, supportive culture openly and continuously engaging them in the practice of teaching (pedagogy) in a passion-driven, competency-based system. It is the interaction of people, and not their individual competencies, that make great cultures and systems. A relentless focus on building these cultures define what "school" is and raise the performance of all the actors in the system. This replaces the unattainable goal of a "great teacher in every classroom" to an attainable "great team for every learner." Such an approach accelerates improvements in professional practice and honors and supports the many good and great teachers already in place while building a strong pipeline of professionals entering the system ready to teach in Innovation Age schools.

The learning system's transparency and openness engage the community as active partners in the work of unfolding the potential of every child. School as an active agent helps the public understand the function of school and how it is meeting its intended outcomes. Such transparency and joint effort garner deep and on-going trust, permission and support in the schools and the professionals in them. (Vollmer, 2010). For an example of what this might look like, see Appendix C: An Example of Life in an Innovation Age School.

Approximating a Design

Approximation of our preferred design is where the "rubber meets the road." The preferred future design is not meant to be implemented right away but instead provides a map helping connect our desire to bring something new into being with our current ability to influence the system in the direction we want it to go. It is qualitatively different from choosing the best alternatives from the existing set of options complete with its constraints and assumptions.

It is here where we learn from those who have succeeded ahead of us. It provides the opportunity to, in Fullan's words, choose the right drivers to transform our system. I made the case earlier that system performance is design driven, and a social system's DNA is its culture. If we don't penetrate the shared image of the existing culture by introducing a new pattern of thought and behavior, we get what we have always gotten.

Cultural DNA is powerful and, given any opportunity, will default to its prior, dominant image of itself. Allowing factory-age assumptions to linger and be reflected in new actions makes it easy for the system to default to prior behavior. We must methodically rid the blueprint of the actions allowing the current system to remain in the status quo.

No amount of external pressure or individual performance can create lasting cultural change in our schools. As Fullan states, we must "change the underlying attitude toward respecting and building the profession, and you get a totally different dynamic" (Fullan, 2011, p. 8). To change the culture means getting at the "motivation and competency development of the vast majority of educators . . . the commitment that comes from intrinsic motivation and improved technical competencies of groups of educators working together purposefully and relentlessly" is what is required to change a culture towards our preferred future. (Fullan, 2011, p. 8).

The characteristics of our Factory Age model includes focusing on "accountability" as defined by external rewards and punishments; believing it is great people and not the interactions produced by the people in the system that produce greatness; that improving individual technical competence and access improves systems, and deploying "linked" efforts create outstanding systems. (Fullan, 2011) (Gharajedaghi, 2011b) (Pfeffer & Sutton, 2006) (Ackoff, 2003). Choosing any first approximations helping to promote or carry forward these ideas is akin to creating non-solutions all over again. We must define "accountability" in a different way, lest we unavoidably stay stuck in the current paradigm. As long as we allow the existing narrow definition of accountability to limit our design aspirations, we will fail. As Fullan so eloquently points out, it isn't traditional accountability that creates successful change, but "purposeful collaboration (is) the most effective form of lateral accountability. When combined with transparency of results, the whole apparatus fosters both collective ownership of educational practice and accountability to the public." (Fullan, 2011, p. 12)

A first approximation must begin implementing our desired future, now. Each approximation must deal with the constraints the designers believe cannot be removed now while positioning the system to, over time, successfully iterate towards the desired ends. (Gharajedaghi, 2011a). Identifying self-imposed constraints from those requiring time and resources as well as those unmovable in the current context provides a powerful

map for determining needed steps in any approximation. Given this, does the Blueprint represent a complete first approximation towards a very specific and desirable future? In short, no.

The Blueprint: A Mix of Hope and Peril

Since the blueprint was designed to improve the existing structure to "world-class" and I have argued that this is not the real goal, it is unfair to attack the blueprint for its inability to meet the vision of "unfolding the potential of every child." It simply wasn't written to accomplish that vision. In short, it is a hodge-podge and, using the words the blueprint, a "cherry-picked" list of elements. Linda Fandel, at a recent community forum on the blueprint said herself, "We're looking at what's worked and trying to pick out the pieces and the right fit for us." (Hogan, 10/16/11). This is a clear example that the blueprint elements are ones largely selected from default solutions and put together in absence of a compelling and desired future or an understanding of how they interact. To demonstrate, some of the elements of the Blueprint include:

- "A great teacher in every classroom and a great principal in every building." This is directly from Obama's Race to the Top and a lead driver Fullan clearly and compelling argues against. It is, however, a very necessary *supporting* driver.
- TAP from Tennessee, which outlines teacher compensation and evaluation within the existing paradigm.
- 3rd grade retention from Florida. This very overtly promotes Factory Age notions of structure and process.

Additionally, the blueprint is dotted with additional Factory-Age structures, functions, and processes like:

- Requiring a 3.0 GPA for anyone wanting to become a teacher. Clearly a narrow and outdated form of determining the "learned." How many great teachers would have been lost in the past with this arbitrary screen?
- Increasing the content coursework for future teachers. Strengthening pedagogy is far more critical in the Innovation Age than a teacher knowing more or better about one tool - content.

- Check all applicants for the right personality, characteristics, and skills needed to be a great teacher. It is important to note that "great teachers" cannot be defined by a narrow set of personalities, characteristics and skills. Every great teacher exhibits very different personalities, characteristics, and skills. The common denominator is their passion for developing people and their student-centered philosophy.

- Require all teachers to meet weekly in small groups to plan and collaborate exclusively on teaching, student learning, and student results. A fine idea but relatively weak as a driver to improve social capital and culture. How are we going to create structures and processes enabling teachers to constantly do this as part of their work rather than simply requiring that they meet periodically?

- Establish a teacher-led curriculum committee to have teacher voices included in curricular decisions. Great first step but it appears we still view children as voiceless raw material rather than important partners and contributors to their own learning. Let's include students, since they are the ones who actually experience the curriculum.

- Put in place a suite of end-of-course assessments for core subjects. A cut score would reinforce clear expectations and would be required for graduation. This is filled with Factory Age assumptions and practices. A learned person should be able to demonstrate their ability to apply content knowledge across disciplines to solve messy and poorly defined problems. The word "cut score" and threats of not graduating to make clear how serious we are about expectations are incompatible with a competency based system.

- High scoring districts have "earned autonomy" and consistently struggling schools get increasingly prescriptive direction from the state. This seems to make the assumption that the state is "Daddy" and that we had better please him or we will be punished. Clarity of vision, transparency of meaningful results, and parent/student choice will do more to drive improvement than any state level carrots-and-sticks. But alas, it seems to be their weapon of choice.

- Rate schools. Again, a strong cultural bias exists causing us to want to point out winners and losers. Again, a transparent and well-rounded set of measures

would provide these answers without declaring winners and losers. "Persistently low achieving" or "exceptional" in what? Tough to put a single label on a system required to produce so many different functions.

- Require all districts to adopt a district-wide and research-based reading program. Great idea on the surface. The problem lies in the fact no particular reading program helps all students. Important to have strong program, yes, but requiring a one-size-fits-all approach for a school or district is steeped in Factory Age thinking.

- End social promotion for 3rd graders who aren't at grade level for reading. This is full of Factory Age assumptions. Words like "social promotion," "retention," and "3rd grade" don't exist in a competency-based system. What would evaluation of the ability to read look like in a system that didn't default to a grade or age but rather helped a school focus on where all the kids were and what was being done to provide them the motivation and the experiences to want to develop and become readers? Should a child be punished for not reading at an age us adults believe they should be, which is March of their 8th year? Where might the fault of the system be in all of this?

- Innovative Charter Schools. First off, I'm not opposed to the idea of a "charter school" I just always have to ask: What problems is charter school designed to solve? It seems to be to release them from constraining policy and mandate. If this is the case, it seems that the best solution isn't a charter school, but creating conditions for all schools and all children to have the opportunity to be innovative, creative, and develop into the Innovation Age schools we need.

- Goals designed to hold the current system constraints in place:
  - Top performing state on NAEP. If we have to adhere to a standardized test, let's at least use PISA, which seems to get at a little problem solving ability. What's the difference between being #4 and #1 outside of bragging rights? What will our kids be able to do that the #4 state's kids won't? Answer that clearly and you've got me on your side.
  - All students reading by the end of third grade or receiving intensive help. What we really want to know is where does a student enter our

system in terms of their reading, math and other abilities and how long does it take them to meet the first gateway related to these skills? What are the system's high, low, and median scores related to this?

 o Ninety percent of HS students successful on end-of-course exams. Again, what would this look like in a competency-based system?

Despite all of this, the blueprint provides many compelling and interesting approaches we might be able to reformulate into a coherent design approximation. Of most value are the ideas and actions related to driving innovation in the educational system. Mapped onto the spider diagram, the efforts in the Blueprint matching up with the goal of "unfolding the potential of every child" look like this:

Idealized Design for Iowa's Learning System for the Innovation Age
Supportive Elements from Blueprint Mapped to Target Elements

Competency-Based Learning System w/Multi-Dimensional, Demonstration Based Assessment System

Develop formative & summative assessments tied to Iowa Core

Expand & grow competency-based system.

Strong Community & Business Understanding, Trust, Permission, & Support

Request NCLB waivers.

Increase teacher voice in curricular decisions.

A Culture of Innovation, Creativity, Learning, & Discovery

Parent liaisons

Increase community engagement

Parent satisfaction surveys

Culture & support measures

Mentoring systems

Student options to advance

New professional compensation system

Outcome & Choice-Driven Performance Systems

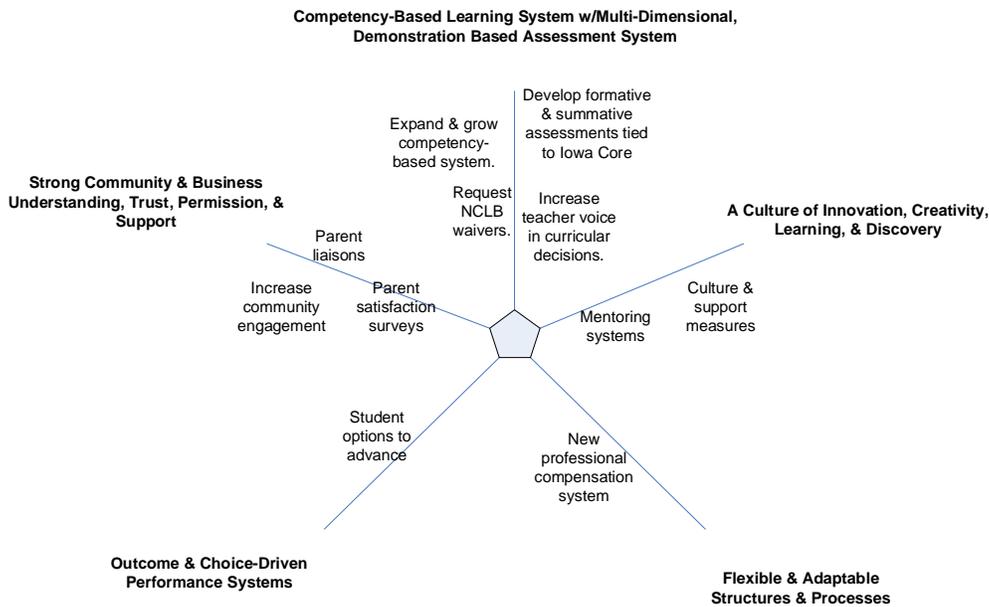Flexible & Adaptable Structures & Processes

Figure 6: Supportive elements of the blueprint mapped to target elements.

Left on the cutting-room floor are those blueprint elements steeped in the current paradigm. Discarding all of them out of hand would be foolish. However, they must be re-conceptualized into actions leading us towards the unfolding of the potential of every

child in contrast to actions to create better versions of the old paradigm. What follows are some examples of how that might be accomplished.

Rather than "3rd grade retention" based upon a dipstick measure, we would answer the question: What would an appropriate set of assessments and supports look like as we moved students through key gateways, no matter their age? I suspect our approach to supporting kids who are struggling and who wouldn't make an arbitrary time-bound goal would qualitatively improve by bringing creative and diverse approaches to bear. The system would be measured on its ability to differentiate and move kids through the gateways, not on its ability to hit arbitrary, standardized time-bound targets. The focus would be about getting all kids successful rather than forcing schools and children to conform to an archaic, time-bound concept of "achievement." As John Taylor Gatto said in his teacher of the year acceptance speech, "When children are given whole lives instead of age-graded ones in cellblocks they learn to read, write, and do arithmetic with ease if those things make sense in the kind of life that unfolds around them." (Gatto, 1990).

Instead of developing yet another set of tests and exams for individual courses, we would invest our time, talents, and dollars in developing and deploying a competency-based system unparalleled in the world with key gateways and standards-based approaches to student evaluation. We would actively break down the damaging ideas of single, discrete courses, scope-and-sequenced curriculums, and age-based configurations. The road would be hard and filled with false starts and surprises, but would be a journey worth taking.

Instead of setting up factory-age cut scores and points for pre-service teachers, we would develop competency-based selection criteria shared up-front with those interested in teaching and select those demonstrating competency in their teacher-preparation. We wouldn't make the mistake of assuming "great learners" (3.0 GPA people) automatically make "great teachers." Rather, we would actively work to retire our old notions of grading, evaluation, ranking, and sorting and selecting while simultaneously pushing higher education in that direction as well. It is important to remember that: a) we are the customer to the colleges of education and not helpless actors having to take what they

give, and; b) they are our partners in this work and should be engaged simultaneously as they work to redefine their factory-age model as well.

Instead of making "great teachers" our lead driver, we would make it our supportive driver and relentlessly work to build cultures where interactions of the people produce extraordinary results. Rather than try to build schools based on the New York Yankee approach of hiring great people, let's build based on the 1980 Olympic hockey team approach; by focusing on the power of a collaborative and dynamic culture that makes good players great together. We would better appreciate the interactions of purposeful actors as the primary instrument of improvement and greatness rather than filling our coffers with superstars hoping to make great schools.

Instead of blindly swallowing the current narrow definition of "accountability" lets build new systems based upon what we truly value. Will we have to submit to some factory-age models of "accountability" to get what we ultimately want? Sure, it's a real constraint in our current context, but we shouldn't be imprisoned by it. Rather than capitulate, use them sparingly and strategically while methodically replacing them with relevant measures pushing the system towards our design. Even "just one more" test is one more to many.

Instead of buying into the "if some 'X' is good, more 'X' is better" fallacy by assuming adding more tests, more days, and more evaluation to an obsolete school system will produce qualitatively different results, lets focus on creating a system for producing order-of-magnitude results for our children.

I submit a potential set of first approximations reflecting a more integrated set aligned to the creation of Innovation Age schools. The red dots and connecting lines represent a visual of where the initial emphasis and work may be. The lines help to show the interdependency of the elements, and their relative position on the spider indicates our goal for moving the needle closer to our desired state. Qualitative and quantitative measures would need to be developed to help inform us of the progress our system is making towards our end-game. This would give Iowan's a clearer picture of the work and emphasis and how we are systematically moving towards a desired future state.

Idealized Design for Iowa's Learning System for the Innovation Age
Suggested 1st Approximation Work (Pickering, 10/21/11)

Competency-Based Learning System w/Multi-Dimensional, Demonstration Based Assessment System

Develop a competency-based matrix tied to the Iowa Core

Encourage, support, & share local efforts to implement competency-based approaches.

Strong Community & Business Understanding, Trust, Permission, & Support

A Culture of Innovation, Creativity, Learning, & Discovery

Explore & test relevant measures & indicators for adaptive, creative cultures.

Request NCLB waivers.

Design & implement a statewide "Great Conversation" with compelling pictures and stories of what Innovation Schools look like.

Implement mentoring system focused on improving collaborative work and inquiry.

Collaboratively explore & design "evaluaton" in Innovation Age systems.

Create examples & illustrations to guide implementation of Innovation Age structures & processes.

Promote & incentivize schools in creating and innovating flexible, adaptable, high-choice structures & processes supporting the work in the other elements.

Outcome & Choice-Driven Performance Systems

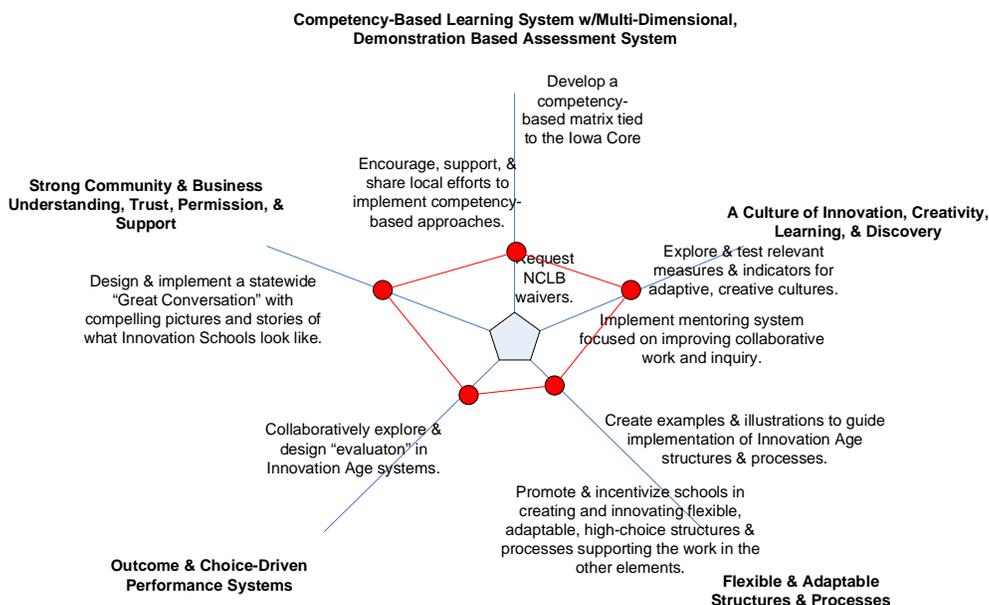**Flexible & Adaptable Structures & Processes**

Figure 7: Suggested first approximation aligned to creation of desired future.

A Call to Action

The Blueprint has served its most important purpose – as a vehicle to bringing a most important conversation and debate to the public forefront. If it continues forward unabated and without significant redesign, it will sub-optimize and make things worse. Not because the things in it are "bad" or "wrong" but because it does not represent a clear and integrated set of approximations tied clearly to a picture of a desired future. It has been referred to as "1.0" but the bigger question remains, 1.0 towards *what?*

World-class schools is NOT our goal. Schools, like content and computers, is a tool or vehicle for realizing something more important. We haven't adequately defined what that something is. I argue for a vision of "unfolding the potential of every child." From such a starting point we can begin to create compelling pictures and models of what that would look like. It leads us naturally to a set of possible integrated solutions providing us the best chance of creating the future rather than simply chasing it. It will spawn widespread, passionate action towards that future without the unnecessary constraints involved in continuously improving what we currently have. Wicked problems demand

design and we have, from Dr. Glass right on through the members of our Iowa community, the expertise, passion, and courage to get this right.

In the end, the state cannot do this for us. We must each work to build a shared and unifying vision and take action at the local level to make it a reality. Let's build a blueprint clearly conveying the wicked problems we face and the picture of our preferred future. Let's use it to drive policy towards codifying what we want and shedding what constrains us (think Carnegie units). From that will stream the most incredible, creative, and impactful solutions the world has ever seen and our state leaders will be there to help clear the barriers and constraints we alone cannot remove while building the system measures and incentives to move "from here to there."

In that spirit, I propose we immediately commence:

- A statewide effort to create the design specifications and pictures of our preferred future by answering the following question first:

  What would we have if we had the learning system we wanted for the children of Iowa?

- A statewide effort to clearly, methodically, and unequivocally communicate to our public both the wicked problems we face and the future we want to design for our children and our state.

- Identify and make explicit the assumptions and constraints holding our current model of education in place as well as the new set of assumptions that ground our design.

- Dismantling our Factory-Age model and all its constraining beliefs and trappings, including influencing those things at the national level designed to maintain the Factory-Age status quo.

- Aggressively creating and implementing game-changing, paradigm breaking efforts at the local level that begin to bring Innovation Age learning systems to life.

Conclusion

The Iowa Blueprint is a bold step forward in that it has elevated the conversation – something Dr. Glass indicated is his job. He's done that well. While I cannot support the blueprint in its current form with its current set of constraining assumptions and factory-

laden actions, I can support the spirit in which it is offered and see in it hints of greatness. The blueprint is more bold than meek. As Elliott Smith, Executive Director of the Iowa Business Council shared with me,

> "Leadership is a function of provocative insight, respectful collaboration, and the courage to act in a transformative manner. In business, as in most things, there are two mistakes that can be made when setting goals. The first is not driving to achieve the standard by which all others are judged. The second is to not even start down this road at all." (Smith, 2011, p. 1).

How do we make a good blueprint great? By driving to achieve a standard by which all others are judged. In short, to redefine the game and the rules used to play it. So let's collectively "lean into this" and forge a common vision of an exciting, preferred future rather than chasing down the current definition of "world-class school." We can't do this by cajoling, pressuring, or fighting over whether we "come together" around or against the current Blueprint. Doing so only creates a false dichotomy and a lose/lose scenario.

No plan survives its crash with reality and our preferred future design would be no exception, but a plan must be anchored in what it is we collectively desire our future to be. This is the Blueprint's greatest shortcoming. It creates a list of actions assuming our problems are hard rather than wicked ones. As Iowans we must use the blueprint as a springboard to a much greater and important conversation. Doing anything less sacrifices our future. We can only do it by first forging a clear vision of "what" we want in the future. Then, and only then, will we have a better sense for what "hows" might serve us best. Engaging our public and our professionals in a bold and audacious new vision and crafting short and long-term action items can begin a difficult but rewarding journey towards something truly transformative. Let's do the two things Seth Godin implores us to do in school: solve interesting problems and lead. (Godin, 2010, p. 47). Through this approach, we may just be crazy enough to create a new and brighter future for our children, our state, and our nation.

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Appendix A: A Brief Comparison of the Systems Orientations Related to Education

	Pre-Machine Age	Mechanical Systems Orientation (Mindless)	Biological Systems Orientation (Uniminded)	Social Systems Orientation (Mult-minded)
Vision for Education:	"To rake the genius from the rubbish" – Thomas Jefferson. Sort and select "learned from laborers."	Congruent with "To rake the genius from the rubbish." Goal: efficiency and predictability.	Congruent with "To rake the genius from the rubbish." Paternalistic – "father knows best.	"To unfold the potential of every child." –Jamie Vollmer & others.
Goals:	Determine the "learned" primarily defined as "classical education" and linguistic, logical/mathematical intelligence viewed as only valid types of "learned." Congruent with pre-machine. Congruent with pre-machine.			Incongruent with pre-machine. View that variation is key to a successful social system and culture. Various intelligences are not "ranked" as one more relevant or important than others.
Underlying structures to ensure vision is realized:	• Set time as constant as method for determining "learned" from "laborer."	• Set time as constant. • Develop tightly aligned system inputs. • View learners as products. • Develop efficient methodologies for sorting/selecting. • Adopt emerging innovation in mass production and scientific management. • Adopt fast, efficient methods of evaluation – standardized testing. • Assume "success in	• Set time as constant. • Develop tightly aligned system inputs. • View learners as products who can provide feedback for improvement to decision maker. • Enhance and improve sorting/selecting tools. • Problems are communication/information based – solution: provide more information and	• Set competency and quality as the constant. • Develop a clear set of outputs – competencies – and flexible means (inputs) to achieve. • Assumes choice is the heart of human existence – multiple means produce the same and different ends. • View learners as having a choice in both the ends they choose and the means to meet those ends. • Value emergent properties –those outside the realm of quantifiable markers – as a more valid

		school" (what standardized tests actually measure) with "success in life." • Assumes failures are result of the people, not the system.	instructions on how-to. • Assume "success in school" (what standardized tests actually measure) with "success in life." • Assumes failures are result of the people, not the system. • Assumes future cannot be created, but that it can be predicted, making the job of people to adequately prepare to meet a largely un-influence - able future.	explanation for human performance and value. • Design is at the heart of human development. Values human capacity to create a preferred future. • Adopt an effective set of assessments to determine basic core competency across multiple dimensions. • End is not success in school on pre-defined tasks, but a person's ability to manifest choice and influence their future and the future of others. • Assumes failures are result of the system, not the people.
Impact on existing order and future:	• Complies with America's rational need to: develop a nation, dependent on a diligent, obedient marginally educated working class.		• Complies with America's rational need to: compete in a post-industrial world dependent on a creative, innovative, and highly skilled workforce.

Appendix B: What an idealized learning system would produce for stakeholders

Stakeholder	Interactive Dimensions Comprising a Socio-Cultural System				
	Knowledge	Power	Beauty	Wealth	Values
Students	• Ability to quickly & accurately access, identify, evaluate and apply information and knowledge. • Ability to understand the interactions and complexity of "wicked problems" and develop holistic solutions. • Ability to effectively communicate with a variety of audiences across multiple context.	• Strong self-efficacy and the ability to create a preferred future for themselves and others. • Ability to create teams utilizing a "power-to" orientation. • Demonstrates ability to lead defined as "the ability to influence those whom you do not control"	• Sense of excitement, wonder, and full engagement in learning permeates their life. • Seeks expertise and life-goals that connect to their passions and interests.	• Ability to set career and personal goals to ensure future livelihood.	• Understands and demonstrates ability to manage conflict by dissolving problems and create new solutions that increase win/win scenarios.
Parents	• Life long learning opportunities as they progress through life phase. • A partner in developing the intellect and ability of their child.	• The ability to exert influence and choice in their child's formal and informal educational paths.	• A strong sense of engagement in the learning system – one that values their contributions and connects to their family interests and goals.	• A pathway for their child to access appropriate resources. • A gateway for sharing their resources for the betterment of their child and the system.	• The ability to engage with the system to solve problems and dissolve conflict.
Teachers	• The ability to continually contribute to and gain from others' learning and expertise. • A valued place in the community as a contributor to the community at-large.	• Strong self-efficacy and the ability to create a preferred future for themselves and others. • Ability to create teams utilizing a "power-to" orientation. • The ability to exert influence and choice in their work – in both the ends they pursue for the system and themselves and the means they utilize to	• A culture of collaboration, sharing, risk-taking, and learning that engaged them through their passions and interests. • A system allowing them to pursue their passions and connecting with young people sharing similar passions.	• Equitable access to the resources necessary to produce the desired outcomes. • Fair and equitable compensation based upon their contributions to the success of the system.	• The ability to engage with the system to solve problems and dissolve conflict. • Continual opportunities to understand the set of problems they and the system faces and engage in dissolving those problems to create new and better

		attain those ends.			solutions.
Community/Society	• Expands the community's knowledge base. • Opportunity to engage in sharing, developing, and expanding knowledge.	• Increase the community's sense of efficacy and ability to create their own preferred future.	• A highly engaged citizenry who has a passion for learning and provides rich and deep learning experiences for its young people.	• Produces a vibrant and diverse economy for the community. • Provides access to talent and expertise to continue to develop the community.	• Learning system reflects the values and interests of the community. • Community a part of problem identification and solution to create win/win scenarios.
Business	• A prepared workforce capable of rapid learning, unlearning, and development. • Innovation and collaboration to develop new and novel solutions.	• A self-managed workforce able to duplicate efficacy and power to develop company goals.	• An engaged and vibrant workforce and community dedicated to continuous learning and passionate about their work.	• The human resources able to generate wealth. • A workforce able to produce high-quality products and services and be rewarded for those efforts.	• A workforce capable of defining problem sets and effectively developing solutions that expand business opportunity and the vibrancy of the communities of which they are a part.

Appendix C: An Example of Life in an Innovation Age School

Children come to school to play with the resources available to them at the school and in the community. The teaching team connected with the group has a very important job in these first few critical weeks: to engage with the kids in play, to respond to their needs by offering new investigations, and following where they lead. The team has a matrix/rubric of essential skills, abilities and competencies and they spend their time together watching, observing and learning about the children – what motivates them, what they are passionate about, where their strengths manifest themselves, where they have gaps in experiences/exposure. This matrix is the beginnings of a competency-based system that will follow the children through their educational experience.

After a period of time, the teachers work to design learning experiences tailored to the students' interests allowing them the opportunity to use that passion to teach critical reading, math, science, and communication/socialization skills. The groups of students and teachers organize by interest and need in dynamic and ever-changing ways and are allowed and encouraged to take the line of inquiry to some logical conclusion (certainly more logical than, "It's 10:05 – time to put our numbers away and get out our books for literacy circle!"). A group of students may be interested in birds and spend 1, 2, 5 days out at a local state or county park where they: take pictures, do drawings, record sounds, learn how to categorize the species, utilize the internet to learn about how birds interact, how they fly, how they make homes, how they survive the winter, how they care for their young, why they live where they live, etc, etc. The students may engage in building birdhouses where they would learn about geometry and other mathematical concepts. They may branch out after wondering about why we call the measuring device a "tape measure" to learn that "tape" implies lots of wound, flat items. They utilize their new understandings in order to place their birdhouses appropriately and might even learn how to row a canoe to place one on the water. Local bird watching experts join the inquiry during this time as well as carpenters, artists, and ecologists to support the teacher in the content side and to show students the myriad of careers and avocations available to them. The students would learn about fitness as a part of daily life by walking the trails and doing physical work. They may even find a dead bird to dissect.

Upon returning from their line of inquiry, the students develop a presentation and teach and show their classmates and parents what they've learned. They may employ an on-line blog or website or a myriad of other tools. The teachers come together to examine the evidence and determine the level of learning each student has achieved. What math concepts did they develop or master? What level of reading did they conquer? Writing skills? Interpersonal and problem solving? Communication? Research and inquiry skills? It would all be documented.

As their time together unfolded, teachers would begin to offer options and tailor projects and experiences helping struggling students approach their learning gaps. They would help others progress steadily forward as they were ready to move, and would provide advanced learning for those moving quickly. "Slow" or reluctant readers wouldn't be taken "head-on" by being forced to endure a reading program as much as pedagogically sound teachers would utilize the students' passion and interest to help the develop the intrinsic motivation to read. As this process unfolded for children, they would eventually approach a "competency gateway" allowing them to progress to the next set of challenging learning with a new team of teachers and professionals ready to support them.

The crux of this system is choice – student choice to pursue their passion with adults they can connect with.

Acknowledgements

This paper would not have been possible without the help of many influential, intelligent, and caring friends and colleagues. Without their support, encouragement, probing and challenging questions, honest critiques, valuable additions and contributions and harsh edits this paper would not be what it is today. A heartfelt thank-you goes out to: Susan Leddick, Jamshid Gharajedaghi, Scott McLeod, Chuck Peters, Bridgette Wagoner, Jerrid Kruse, Gordon Dahlby, Matt Townsley, and Troyce Fisher. Your contributions to this work have been invaluable. I also wish to thank my wife, Kim, and daughters Samantha and Shelby for indulging me as I obsessively and relentlessly pursued this effort. My passion for this work springs from watching you endure an education system no longer suited to your current realities or the future you face. I do this to make your world and the world of your children better.

Disclaimer

The views and opinions reflected in this paper are mine and mine alone. They do not necessarily reflect the opinions, positions, or views of my employer, the Grant Wood Area Education Agency, its member school districts, or those identified in my acknowledgement above.

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