Mapping the Gap: Using Growth Opportunity Items and Principles as well as Design Thinking to Eliminate the Creative Achievement Gap

Thesis

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By

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Abstract

The Skills Gap is a disconnect in the skills that students have acquired throughout their education, and the skills that businesses are seeking from potential employees. The Creativity Crisis is the documented phenomenon where young children test at genius levels of creativity, but by adulthood, lose most of their creative capacity. Until now, these two ideas have been considered separate circumstances, but what if they are part of a bigger problem...of a Creative Achievement Gap?

While students continue to lose creativity, businesses demand innovative, creative thinkers. Design Thinking can help to bridge the gap. Using existing research and literature, I have uncovered five separate Growth Opportunities that will help to align the goals of K–12 education, business, and learners (of any age). These Growth Opportunities are Skills, Character, Mindset, Values, and Community. Items in each individual Growth Opportunity have been communicated by authors from many different backgrounds, and writings about a variety of topics (education, business, design, thinking, creativity, etc).

In the end, I will propose a list of “Shared Principles for Stakeholder Alignment” which are the Growth Opportunity items that I’ve interpreted as actionable principles that can be used to align all stakeholder groups—students, parents, teachers, workers, businesses, and learners of any age. By doing so, we can effectively address the Creative Achievement Gap.
Dedication

This work is dedicated to my husband, whose unconditional support and patience are seemingly endless.

And to my son, whose energy and enthusiasm for life are contagious.

“And she loved a little boy very, very much—even more than she loved herself.”

-Shel Silverstein
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# Table of Contents

Abstract ............................................................................................................................................................................... ii

Dedication .......................................................................................................................................................................... iii

Acknowledgments ........................................................................................................................................................... iv

Vita ....................................................................................................................................................................................... v

List of Tables ..................................................................................................................................................................... vii

List of Figures .................................................................................................................................................................... ix

Chapter 1: Overview ........................................................................................................................................................... 1

Chapter 2: The Skills Gap ............................................................................................................................................ 4

Chapter 3: The Creativity Crisis ................................................................................................................................... 14

Chapter 4: The Design Process .................................................................................................................................... 21

Chapter 5: Methodology ............................................................................................................................................... 28

Chapter 6: Results .......................................................................................................................................................... 36

Chapter 7: Implications .................................................................................................................................................. 55

References ........................................................................................................................................................................ 79

APPENDIX A: Complete Preliminary Survey for Adult Participants ................................................................. 88

APPENDIX B: Survey Results from Preliminary Study with Adult Participants ............................................. 97

APPENDIX C: Interview Transcripts from Preliminary Study with Adult Participants .................................. 113
Table of Contents
TABLE 6.5 Think, Feel, and Do | Authors .................................................................................................................... 51

TABLE 6.6 Think, Feel, and Do | Items ........................................................................................................................ 52

TABLE 7.1 Shared Principles for Stakeholder Alignment ........................................................................................................................ 69

TABLE 7.2 Shared Principles for Stakeholder Alignment: Ease of Implementation ........................................................................................................................ 71

TABLE 7.3 A Shared Principles for Stakeholder Alignment: Easier ........................................................................................................................ 74

TABLE 7.4 B Shared Principles for Stakeholder Alignment: Moderate ........................................................................................................................ 75

TABLE 7.5 C Shared Principles for Stakeholder Alignment: More Difficult ........................................................................................................................ 76
List of Figures

FIGURE 7.1 Essential Features of 21st Century Education Through Growth Opportunities .................. 56

FIGURE 7.2 Harris interactive Study | Gap between Importance of Skill and Worker’s Current Skill Level .... 57

FIGURE 7.3 Current Educational System ........................................................................................................ 58

FIGURE 7.4 Growth Opportunities in the Current Educational System ............................................................ 59

FIGURE 7.5 Ideal Educational System ............................................................................................................... 61
Chapter 1: Overview

The Skills Gap is a disconnect in the skills that students have acquired throughout their education, and the skills that businesses are seeking from potential employees. The Creativity Crisis is the documented phenomenon where young children test at genius levels of creativity, but by adulthood, lose most of their creative capacity. Until now, these two ideas have been considered separate circumstances, but what if they are part of a bigger problem...of a Creative Achievement Gap?

In Chapter 2: The Skills Gap, I will discuss the reasons that people choose to become educated, then discuss the Skills Gap in further detail, both from the perspective of K–12 Education, as well as from business. Tony Wagner—an innovation education fellow at the Technology and Entrepreneurship Center at Harvard and a former high school teacher, K–8 principal, and university professor in teacher education—states, “With the exception of one study on interactions in predominantly middle-class elementary school classes, we have no real data about what’s being taught in the “good” suburban schools that are supposed to be the models of success—only continuing horror stories about our failing urban schools. So there is no systematic understanding of how all this increased emphasis on teaching and testing more academic content is actually affecting what happens in real classrooms around the country on a daily basis.” (The Global Achievement Gap 13). This information is troubling because it means that no one can articulate—or possibly agree on—even the basic components of a school and how it is considered successful, beyond test scores. One of the goals in this work is to at least start to articulate what those components might be, and how one might use that information going forward.
I will delve into Chapter 3: The Creativity Crisis by discussing the culture of innovation in business and the documented “Fourth Grade Slump” (Kim 291). In 1968, George Land conducted a study with 1600 children in the newly founded Headstart program. Using tests that he prepared for NASA—to test the creative abilities of the engineers and scientists—he tested the children, who were between three and five years of age. The results were stunning: 98% of the children scored in the “genius” category. Five years later, the same test was given to the same children, and only 32% scored in the “genius” level. Five years after that, only 10% scored that high. By the age of 25, out of those children—along with about 200,000 others of the same age—only 2% scored at genius level (Land and Jarmin 153). This chapter’s goal is to bring light to the Creativity Crisis, and the Skills Gap. I’ve called this combination the “Creative Achievement Gap.”

In Chapter 4: The Design Process and Design Thinking, I will go in to detail about the ideas behind using a design (or creative) process, and the topic of Design Thinking. The beauty of any design process is two fold; first, it acts as a guide for the individual to organize their thoughts and ideas. Instead of just jumping into a problem without a frame of reference, the individual can be deliberate about where to start and how to follow through the process. Second, it acts as a road map for a group of people working together. If everyone is looking at the same process, confusion is less likely because everyone knows exactly where they should be in the process. Using a design or creative process outside the confines of design is how I define “Design Thinking.” Design Thinking offers great potential in combating the Creative Achievement Gap by making creativity and innovation intentional and repeatable.

Chapter 5: Methodology, will start by covering a small study done with the stakeholder groups of K–12 students, parents, and teachers. After surveys and interviews with each group confirmed that each found creativity to be an important aspect of education, all efforts were put into a broad literature review, completed by covering a wide variety of authors and topics. From this review, five Growth Opportunities were
discovered: Skills, Character, Mindset, Values, and Community. Each of the five Growth Opportunities contain numerous items which are further explained in greater detail in the following chapter (Chapter 6).

In Chapter 6: Results, I will discuss the findings from the previous chapter and the reader will be introduced to the idea of the “Trilogy of the Mind” in the form of “Think, Feel, and Do.” Using this additional framework, the reader will be able to better understand the Growth Opportunity items through the lens of Think, Feel, and Do, and will be given examples of how the tables and figures in this chapter can be utilized.

Finally, Chapter 7: Implications will deal with how to utilize the Growth Opportunity items and principles and Design Thinking going forward. Options are introduced for using the Growth Opportunities as a part of the current educational system, in the ideal educational system. As well, I will discuss mission, vision, values statements and their advantages, as I use the Growth Opportunity principles to create a road map to address the Creative Achievement Gap. For future success, one must use the Growth Opportunity items and Design Thinking as a framework for success and continual development. In the end, I will propose a list of “Shared Principles for Stakeholder Alignment” which are the Growth Opportunity items that I’ve interpreted as actionable principles that can be used to align all stakeholder groups—students, parents, teachers, workers, businesses, and learners of any age. I believe that by doing so, we can effectively address the Creative Achievement Gap.
Chapter 2: The Skills Gap

Why Education?

Why do people choose to pursue education? To be honest, how many people actually chose to become educated? From a young age—around five years old—most children in the United States are enrolled in elementary school. But why is that? Is it because the children themselves decided that they should start “formal” education, or is it just something that as a society we simply do? I would argue the latter. And why do we do this? Let us assume that the reason is because all parents care about the well being and futures of their children; this seems clear when it comes to choosing which schools parents enroll their children into. Parents move into suburbs for “good” schools, while others put their children on waiting lists for charter schools, because their home school is not good enough, safe enough, or does not offer the education the guardian wants for their child.

It is safe to say that parents want what is best for their children, especially when it comes to their education. But what does moving to a “good” school district, or enrolling their children in a charter school really mean anyway? There is no question that there are schools and school districts that are safer, and that have proven their value with high test scores. Like it or not, test scores are the main basis for how schools are judged, at least in the state of Ohio, where I reside. Tony Wagner—an innovation education fellow at the Technology and Entrepreneurship Center at Harvard and a former high school teacher, K-8 principal, and university professor in teacher education—states in his book, The Global Achievement Gap, “parents and policymakers alike believe that high test scores are the best, most reliable measure of a good school system. Accordingly, test scores are still the most significant determinant of a community’s real estate values” (12). These are the schools—the “good” schools—that parents flock to in order to give their children the best education possible.
Thinking about the bigger picture, why is so much confidence put into test scores? Why does it matter if our children go to the most highly decorated private school, or the public school with the worst reputation? What do those things actually have to do with education? “Employing standardized achievement tests to ascertain educational quality is like measuring temperature with a tablespoon. Tablespoons have a different measurement mission than indicating how hot or cold something is. Standardized achievement tests have a different measurement mission than indicating how good or bad a school is. Standardized achievement tests should be used to make the comparative interpretations that they were intended to provide. They should not be used to judge educational quality” (Popham, ascd.org). I would argue that parents aren’t necessarily looking for the “best” schools for their children, but schools that offer their children the most opportunities. Some schools do better on standardized testing, some do worse, but they all serve the same function—to educate the next generation.

Understandably, there are a variety of reasons that people of any age choose to pursue education. Perhaps an individual has a specific personal goal of a professional career, or perhaps the individual just loves learning, so they continue their education in order to simply know more. Maybe one chooses to study because of the personal satisfaction they get from learning. The reasons for education are endless; however, I will argue that overwhelmingly, the reason people pursue education—and even more-so higher education—is in order to get a “good” job. This can mean a lot of things to a lot of people, but for this work, let us define a “good” job as a job or career in which a person makes a living wage, and has the opportunity for growth—personally, professionally, and financially. A “living wage” is defined by Merriam-Webster’s Online Dictionary as “an amount of money you are paid for a job that is large enough to provide you with the basic things (such as food and shelter) needed to live an acceptable life” (“Living Wage”). In his research, Wagner claims to have come “to understand the concept of the global achievement gap through research on the competencies that young people need today in order to be prepared
for the world of work.” He “wanted to find out what a high school graduate today would need to know in order to succeed at a ‘good’ job that paid more than minimum wage” (The Global Achievement Gap 9).

Parents want opportunities for their children in order for them to become responsible, self-sufficient adults; opportunities through an education that will provide them the skills to land a good job or career. This is why it matters what schools our children go to. Because if the education our children receive today is insufficient, it not only affects them today, but also their future livelihood. It impacts their chances of finding a good job and the opportunities they are presented with. This is why discussing the Skills Gap matters, because the future generation’s livelihood is at stake.

**The Skills Gap**

Simply put, the Skills Gap is “the gulf between the skills job seekers currently have and the skills employers need to fill their open positions” (Dimon and Seltzer, politico.com). The Skills Gap phenomena is discussed most often when referring to college graduates that, while highly educated, can’t seem to find work upon graduation. In his book, The Global Achievement Gap: Why Even Our Best Schools Don’t Teach the New Survival Skills Our Children Need—and What We Can Do About It, Tony Wagner describes the global achievement gap as, “the gap between what even our best suburban, urban, and rural public schools are teaching and testing versus what all students will need to succeed as learners, workers, and citizens in today’s global knowledge economy” (8). Though Wagner uses different terminology, it is clear that he is discussing the same phenomenon.

Not only is the fact that U.S. students are underprepared for the business world troubling, but so, too, is the fact that those same students are also in danger of losing jobs to students from other countries. Wagner continues, “In today’s highly competitive global ‘knowledge economy,’ all students need new skills for college, careers, and citizenship. The failure to give all students these new skills leaves today’s youth—and our country—at an alarming competitive disadvantage. Schools haven’t changed; the world
has. And so our schools are not failing. Rather, they are obsolete—even the ones that score the best on standardized tests” (The Global Achievement Gap Introduction).

**THE SKILLS GAP AND EDUCATION**

One could easily argue that there are many objections with the current system of education. Parents, teachers, and students are all frustrated at the standards that they’re forced to meet, set by people not located in the buildings where the teaching and learning take place, but in government buildings. People are upset about students being “taught to the test” yet, the pattern continues, even though teachers, parents, and students alike are frustrated by the culture of standardized testing. However, even with the massive amounts of testing, schools are failing to provide students with the skills that businesses want; how is this possible?

Wagner states that, “With the exception of one study on interactions in predominantly middle-class elementary school classes, we have no real data about what’s being taught in the “good” suburban schools that are supposed to be the models of success—only continuing horror stories about our failing urban schools. So there is no systematic understanding of how all this increased emphasis on teaching and testing more academic content is actually affecting what happens in real classrooms around the country on a daily basis.” (The Global Achievement Gap 13). This information is troubling because it means that no one can articulate—or possibly agree on—even the basic components of a school and how it is considered successful, beyond test scores.

From the introduction to Dumbing Us Down: The Hidden Curriculum of Compulsory Schooling, David Albert discusses the essential features of 21st education, as developed by Daniel Greeberg. “Dan Greenberg, founder of the Sudbury Valley School — a successful 30-year-old learning community based on the principles of self-initiated learning and democratic self-government — has written that between leading
educators, business leaders, and government officials there is a virtually unanimous agreement regarding the essential features of an education that would meet the needs of society in the 21st century. He sees consensus on six points:

• As society rapidly changes, individuals will have to be able to function comfortably in a world that is always in flux. Knowledge will continue to increase at a dizzying rate. This means that a content-based curriculum, with a set body of information to be imparted to students, is entirely inappropriate as a means of preparing children for their adult roles.

• People will be faced with greater individual responsibility to direct their own lives. Children must grow up in an environment that stresses self-motivation and self-assessment. Schools that focus on external motivating factors, such as rewards and punishments for meeting goals set by others, are denying children the tools they need most to survive.

• The ability to communicate with others, to share experiences, to collaborate, and to exchange information is critical. Conversation, the ultimate means of communication, must be a central part of a sound education.

• As the world moves toward universal recognition of individual rights within a democratic society, people must be empowered to participate as equal partners in whatever enterprise they are engaged in. Students (and teachers) require full participation in running educational institutions, including the right to radically change them when needed.

• Technology now makes it possible for individuals to learn whatever they wish, whenever they wish, and in the manner they wish. Students should be empowered with both the technology and the responsibility for their own learning and educational timetable.

• Children have an immense capacity for concentration and hard work when they are passionate about what they are doing, and the skills they acquire in any area of interest are readily transferable to other fields. Schools must thus become far more tolerant of individual variation and far more reliant on self-initiated activities. (Albert, Introduction)

This is particularly interesting and helpful because instead of focusing on the negatives of the current education system—which is all too easy to do—it focuses on the “most essential features of an education that would meet the needs of society in the 21st century.” In other words, it takes out a bit of the guesswork as to what qualifies one education as successful and another not, in terms separate from
test scores. However, one reason that people, in fact, do like test scores is because test scores are hard quantitative data that can be quantified and analyzed with statistics. But perhaps, that is actually part of the problem in our current system: because having the data and being able to understand and use that data to improve schools are two different things. For instance, one might have a large amount of data about different models of cars, but if that person doesn’t understand how to apply the knowledge they gained from the data, it doesn’t help them choose which car to purchase. But does that have to be the case? Is that the best way to measure education—with a letter or a number? Daniel Greenburg sheds light on the issue by stating:

I believe one of the key reasons Sudbury Valley has had difficulty giving parents a sense of security about sending their children here is the inadequacy of people’s grasp of the primary goal of education and how it relates to children and to society. This is also the reason mainstream schools have had trouble understanding their continuing failure, despite repeated efforts at “redefining goals” and “reforming education”. Virtually all the innovations in schools have been, and continue to be, in such areas as curriculum, administration, pedagogical methodology, and other such secondary levels, all of which depend in their essence on the fundamental goal of education which they serve. This deficiency at the most fundamental level of understanding cannot be remedied by any amount of exertion on other levels. Comprehending the primary goal of education seems to me to be well worth considerable effort. (sudval.com)

Tony Wagner, after extensive interviews with employers and top level executives, created a list of what he calls the “seven survival skills” (to survive the global achievement gap). These skills are: critical thinking and problem solving, collaboration across networks and leading by influence, agility and adaptability, initiative and entrepreneurship, accessing and analyzing information, effective oral and written communication, and curiosity and imagination (The Global Achievement Gap, ch. 1). In his follow-up book, Creating Innovators: The Making of Young People Who Will Change the World, he admits that this list is simply a starting point, and continues to expand upon those skills and other ideas (Creating Innovators 11–12). With both the ideas from Greenberg and Wagner, one can start to envision education in a different kind of way, which is a powerful opportunity, and an idea that I will return to later.
But, schools are only part of the equation when talking about the Skills Gap. Though it’s easy to point fingers at education in America, what is business’ role in the Skills Gap? Conventional K–12 education has a long history, and is admittedly slow to change, whereas business has become so fast paced, that it’s hard to keep up. Add to that the notion that some of the careers that we are attempting to educate our children for today don’t even exist yet. Imagine traveling back to 1994 and asking someone what a Social Media Strategist does! The fact that a mere 20 years ago, the internet was in its infancy, and social media didn’t exist shows just how fast technology is advancing the job market and opportunities.

THE SKILLS GAP AND BUSINESS

What is business’ role in the Skills Gap? It would be easy to conclude that since business wants certain skills and abilities, and students want the jobs that businesses are offering, that schools should just start teaching students accordingly. Though that would be the straightforward answer, there are some inherent problems. To begin with, public K–12 Education in America is “free.” Free, meaning that in most areas, the schools are funded nationally by the United States Government, and locally by taxes from homeowners. Students do not have to pay the schools directly in order to attend. There are voucher systems in some areas which act as a substitute for money in public schools, but for the purposes of this work—and brevity—it’s not necessary that we discuss that.

Corporations are either privately or publicly owned businesses that exist to make profits. One can then begin to understand how teaching students according to a corporation’s prerogative could be less about creating thoughtful, intelligent, self-sufficient, life-long learners, and more about creating workers who will help them positively affect their bottom line. Also, how would involving corporations into a governmental system work? Would that give corporations even more power to influence the government? This is a legitimate concern.
If schools aren’t teaching the skills that businesses want, and businesses aren’t getting the type of prospective employees that they want, what can be done? Some people, such as Peter Cappelli argue that the Skills Gap doesn’t actually exist. In his book, *Why Good People Can’t Get Jobs: The Skills Gap and What Companies Can Do About It*, he posits that, “The real culprits are the employers themselves. With an abundance of workers to choose from, employers are demanding more of job candidates than ever before. They want prospective workers to be able to fill a role right away, without any training or ramp-up time. To get a job, you have to have that job already. It’s a Catch-22 situation for workers—and it’s hurting companies and the economy” (Introduction). What if he’s right? Even if he’s not right about the existence of the Skills Gap, he brings up an excellent point that turns the finger pointing from our education system to the businesses themselves. Cappelli continues, “There is a difference between saying, “We can’t find anyone to hire,” and saying, “We can’t or don’t want to pay the wages needed to hire” (Introduction).

Should business dictate education? If they really want their employees to have certain skills, why isn’t business teaching their employees the skills, instead of pointing fingers at the schools? Cappelli agrees, saying, “In short, a huge part of the so-called Skills Gap actually springs from the weak employer efforts to promote internal training for either current employees or future hires” (ch. 5). Employee training programs, such as apprenticeships, used to be desirable for both employee and employer. The employer ensured that each employee would know their job exactly as they preferred it be done, and the employee knew what was expected of them. While training used to be more a normal part of the work experience, employees of the past also stayed at their jobs for not only a few years, but sometimes for their entire working career. At one time, an extensive training program would pay for itself, and both parties would benefit (Cappelli, ch. 5).

However, in today’s market, people are likely to change not only positions, but also professions in their working career. So, if a company spends a considerable amount of money to train one employee, only for the employee to leave a year later, the business loses their benefit, and the employee gets all of the
reward. And beyond the financial loss, educating employees about company specifics could be detrimental if the employee then took their knowledge to the company’s competition. For this reason, one can understand why a business might choose not to offer employees direct training.

Whether or not one chooses to believe in the existence of the Skills Gap, there is definitely a problem if a capable, employable person can find job opportunities, but can’t seem to get hired for that job. Cappelli cites the following study: “A 2011 study of 540 hiring managers conducted by Harris Interactive for the DeVry Career Advisory Board echoed these findings: Out of the “attributes the managers viewed as important for success in their organizations, only one, communication skills, was related to an academic subject” (Cappelli, ch.3). This is indeed interesting as it would seem that all that finger pointing toward traditional education is unfounded if one believes that the job of schools is to teach students subjects, which seems plausible since subjects are what standardized tests evaluate. The following information is from the Harris Interactive Study:

*Gap Between Importance of Skill and Worker’s Current Skill Level (as ranked and perceived by employers)*

**Severe Deficit**
- Personal accountability for work
- Self Motivation
- Strong work ethic
- Punctuality/showing up to work on time
- Time-management skills
- Professionalism
- Adaptability

**Moderate Deficit**
- Oral communication skills
- Creative problem solving
- Teamwork
- Cortical Thinking
- Job-specific professional skills
- Customer/Client relationship management skills
- Quantitative reasoning
**Small Deficit**
- Reading skills
- English skills
- Job-specific technical skills
- Writing skills
- Basic computer skills

**No Deficit**
- Specialized IT user skills
- Management skills
- Administrative skills
- Mechanical/machine operating skills
  (Cappelli, ch. 3)

There are a few interesting things about this list. First, it would appear that the group of “no deficit” seems to be related to typical work related skills that are present in most every job. Using a computer, completing paperwork, and operating office machinery. The “small deficit” group seems to relate to traditional education. But what is most interesting are the two groups of “moderate deficit” and “severe deficit.” Both of these groups represent skills that are either not specifically taught in schools, or that are not encouraged in our current education system, and this is where the real opportunity lies.

While Cappelli states that there is no Skills Gap, I wonder if instead he means that there is not a Skills Gap in education. I bring this up because in choosing to use this list and show a “deficit” in skills, isn’t that proving that there is a “gap” in the “skills” that employers are looking for? Blaming that deficit or gap on the education system or business doesn’t make it go away or not exist—it’s simply shifting the blame. Even if business is creating the gap themselves, it does not mean that the gap does not exist.
Chapter 3: The Creativity Crisis

The Creativity Crisis: Innovation Culture

“Sir Ken Robinson, PhD is an internationally recognized leader in the development of creativity, innovation and human resources” (Out of Our Minds, About the Author). In his book, Out of Our Minds: Learning to be Creative, he states that, “As the world spins faster and faster, organizations everywhere say they need people who can think creatively, communicate and work in teams: people who are flexible and quick to adapt. Too often they say they can’t find them. Why not” (1-2)?

With a quick search on the word “innovation” one is likely to encounter far more information and advice than is possible to comprehend. Innovation seems to be a “buzz word” that people attribute to their company to make it seem more desirable. If innovation is not desirable, why then does Fast Company—among many other publications—have a list of the most innovative companies each year? From its own website, Fast Company describes itself as, “the world’s leading progressive business media brand, with a unique editorial focus on innovation in technology, ethonomics (ethical economics), leadership, and design. Written for, by, and about the most progressive business leaders, Fast Company and FastCompany.com inspire readers and users to think beyond traditional boundaries, lead conversations, and create the future of business” (Fast Company: About Us, fastcompany.com). So, one can infer from this that the most progressive business leaders believe that innovation is not only important, but the future of business.

Tony Wagner, in his book Creating Innovators: The Making of Young People Who Will Change the World, agrees stating that, “The long-term health of our economy and a full economic recovery are dependent upon creating far more innovation. New or improved ideas, products, and services create wealth and
new jobs” (Introduction). But exactly what is innovation? And if innovation is so important, why wasn’t this even mentioned by Greenberg’s ideal educational model, Wagner’s seven survival skills, or Cappelli’s cited list from the Harris Interactive study? If innovation is truly important, how does it fit into the Skills Gap equation?

There are a wide variety of definitions of creativity and innovation; everyone seems to have an opinion. However, moving forward it is imperative that I define both for this work specifically. One of the greatest minds on the subject of creativity is Edward de Bono, who has written about the subject since the early 1970s. In his book, *Serious Creativity: Using the Power of Lateral Thinking to Create New Ideas*, de Bono states that, “Creativity is a messy and confusing subject and seems to range from devising a new toothpaste cap to Beethoven’s writing his Fifth Symphony. Much of the difficulty arises directly from the words “creative” and “creativity” (3). He continues, “Normally we see “creativity” most manifestly in the work of artists, so we assume that creativity and art are synonymous. As a result of this confusion we believe that to teach creativity we must teach people to behave like artists. We also assume that artists might be the best people to teach creativity” (34). He continues to say, that while artists are inherently creative, there is another type of creativity, one that isn’t mythical, or only available to a special few, or that relies on an “aha” moment, but a type of creativity that is, “very specifically concerned with the creative skills needed to change concepts and perceptions” (4). This last type of creativity can be taught, nurtured, and is a logical process, based on the self-organizing systems of the brain.

So, creativity—for the purpose of this work—will borrow de Bono’s definition, that it is a set of creative skills that are used to change concepts and perceptions, not the “aha” moments of an artist. To further the understanding of this definition, de Bono describes some of the misconceptions of creativity. Paraphrasing his work:

- *Creativity is a natural talent and cannot be taught*
- *One must be rebellious to be creative*
- *Only “right brained” people are creative*
- *Only artists are creative*
• Releasing people’s inhibitions will suddenly make them creative
• Creativity relies on intuition
• Creativity needs to be “crazy” or “weird”
• Creativity is haphazard (think Brainstorming)
• “Big jump” creativity—a completely new thing that shifts a paradigm—is better or more important than “small jump” creativity—that improves on something existing
• Groups are more creative than individuals

It is important that the reader understand that these are only misconceptions about creativity since many, if not all, of the preceding list are often unfairly considered fact.

But what about innovation? Why should we be concerned with creativity when what we really want in business is innovation? Sir Ken Robinson states that creativity is the process of developing original ideas that have value while innovation is the process of putting those ideas into practice (3). What is interesting about thinking about both terms in this way is that innovation is a product of creativity; an innovative product is inherently creative, but a creative product is not necessarily innovative. So, while business may discuss innovation over creativity, there must be creativity in order to have innovation. This is why businesses should care about creativity.

People generally tend to think that creativity has to do specifically with art—it doesn’t as we’ve heard from de Bono—but the false perception perpetuates itself. But why do they think that in the first place? “It would be easy to suggest that this neglect is because policy-makers have a distorted view of the arts, as less valuable than subjects such as Information Technology,” states Nick Kettle in an article in The Ecologist titled Robotic Children (Kettle). I would be hard pressed to find many people willing to say that art class is more important than science class. In fact, creativity in other classes is frowned upon, with emphasis on getting the “right” answers, and students who question those answers are met with disdain, or perhaps treated as troublemakers. “One of the most consistent findings in educational studies of creativity has been that teachers dislike personality traits associated with creativity” (Westby and Dawson 1). Finally, what creative person in traditional education hasn’t been advised by well-meaning parents and teachers at some point to choose classes that are more “practical” for their future? From a
young age students are programmed to think of creativity in a very narrow definition only related to art, and in doing so, put value judgments on it. Art isn’t practical as a future career. We’ve all heard of the starving artist, and who wants to grow up to be poor and starving? But, if that student becomes a doctor, engineer, or business professional, that is good. No one ever scares kids with tales of the “starving lawyer.” So, perhaps business hasn’t valued creativity up to this point, because they never learned to; they never learned its full potential, and that started long before they put on a power suit.

I see all of this as important when discussing the Skills Gap. Businesses today want innovative—and therefore creative—thinkers. This is apparent in the seemingly endless books that promise individuals and businesses the keys to success through innovation. As discussed previously, there is a Skills Gap between education and business. The skills missing are \( x, y, \) and \( z \) according to studies and research, yet even armed with that information, the gap still exists. Why? I believe that at least in part, the Skills Gap is really a manifestation of the “Creativity Crisis”—which I will define in further detail in the following section—and that the reason we need to train people in businesses to be creative is because they did not learn these skills as part of their education.

**The Creativity Crisis: The Fourth Grade Slump and More**

In 1968, George Land conducted a study with 1600 children in the newly founded Headstart program. Using tests that he prepared for NASA—to test the creative abilities of the engineers and scientists—he tested the children, who were between three and five years of age. The results were stunning: 98% of the children scored in the “genius” category. Five years later, the same test was given to the same children, and only 32% scored in the “genius” level. Five years after that, only 10% scored that high. By the age of 25, those children—along with about 200,000 others of the same age—only 2% scored at genius level (Land and Jarmin 153).

In Kyung Hee Kim’s work, *The Creativity Crisis: The Decrease in Creative Thinking Scores on the Torrance Tests of Creative Thinking*, Kim states that, “The TTCT (Torrance Tests of Creative Thinking) is a good
measure to use when examining changes in the potential for creative thinking over time. That is because it is widely used and psychometrically sound.” She continues, “The TTCT is utilized extensively in both the educational field and the corporate world, and it is more widely used and referenced than other measures of creative or divergent thinking” (285).

In her study, Kim gains many insights through the application of The Torrance Tests of Creative Thinking, which were given five times: in 1974, 1984, 1990, 1998, and 2008. In her research, she reveals that, “Children’s ability to produce ideas (Fluency) increased up to third grade and remained static between fourth and fifth grades, and then continuously decreased...” As well, she states that, “until fifth grade, children were increasingly open-minded and curious and more apt to produce unique responses. After that, they began a trend of increasing conformist thinking that continued through high school” (Kim 291). “The results indicate younger children are tending to grow up more narrow-minded, less intellectually curious, and less open to new experiences” (Kim 292).

In both Land’s and Torrance’s work (as cited by Kim), longitudinal studies have shown that basically as children age, they become less creative. This is a problem for a number of reasons. According to Po Bronson and Ashley Merryman of Newsweek in The Creativity Crisis,

*The potential consequences are sweeping. The necessity of human ingenuity is undisputed. A recent IBM poll of 1,500 CEOs identified creativity as the No. 1 “leadership competency” of the future. Yet it’s not just about sustaining our nation’s economic growth. All around us are matters of national and international importance that are crying out for creative solutions, from saving the Gulf of Mexico to bringing peace to Afghanistan to delivering health care. Such solutions emerge from a healthy marketplace of ideas, sustained by a populace constantly contributing original ideas and receptive to the ideas of others* (Bronson and Merryman, newsweek.com).

This is an interesting consideration, as up to this point, we’ve discussed the idea of creativity being good for business mostly in a monetary sense; how does creativity affect the bottom line? But it’s also important to consider the bigger problems and opportunities to which creative thinking can also add value. Bronson and Merryman continue,
Overwhelmed by curriculum standards, American teachers warn there’s no room in the day for a creativity class. Kids are fortunate if they get an art class once or twice a week. But to scientists, this is a non sequitur, borne out of what University of Georgia’s Mark Runco calls “art bias.” The age-old belief that the arts have a special claim to creativity is unfounded. When scholars gave creativity tasks to both engineering majors and music majors, their scores laid down on an identical spectrum, with the same high averages and standard deviations. Inside their brains, the same thing was happening—ideas were being generated and evaluated on the fly (Bronson and Merryman, newsweek.com).

The idea of the “art bias” should sound familiar, echoing de Bono’s definition of creativity. The Newsweek article continues by discussing the idea of putting creativity into schools, not just in art classes, but throughout the curriculum. While researching for this work, I have read many books and articles pertaining to education, the state of K-12 education in America today, and ideas for improvement in K-12 education. I mention this here because I want the reader to know that I am aware of the issues such as “teaching to the tests,” where teachers either purposely or inadvertently are no longer teaching for comprehension, but teaching students to pass standardized tests, and the newest issue of “Common Core,” an elaborate and rigorous set of standards in certain subjects that students must meet in order to progress through their education. All of these standards are supposed to help students learn and become successful, yet teachers, parents and students alike are frustrated. So Bronson and Merryman continue by saying that, “the argument that we can’t teach creativity because kids already have too much to learn is a false trade-off. Creativity isn’t about freedom from concrete facts. Rather, fact-finding and deep research are vital stages in the creative process” (Bronson and Merryman, newsweek.com).

What stands out about the discussion of creativity in education, is that the above-mentioned article was written in 2010, well before Kim’s study about declining creativity with age and time (since 1990). This interests me because she pulled her information from Torrance’s tests, starting in 1974. Land’s study was begun in 1968. Further, in Gifted Child Quarterly, Torrance wrote an article titled, “Must Creative development be left to chance?” In the article written in 1962, Torrance states that an educator argued,
A child has to know the three R’s in order to do anything! Isn’t it enough that the schools teach him to read, write and figure? Let him dash off on his own errands later, let him specialize in college.” Such a statement, of course, reflects a gross misunderstanding of the nature of creative thinking. The development of the creative thinking abilities is at the very heart of the achievement of even the most fundamental educational objectives, even the acquisition of the three R’s. It is certainly not a matter of specialization (“Must Creative Development” 41).

Simply taking only these dates into consideration, people have been discussing creativity in education in the same manner for over fifty years. Fifty years! But, Torrance continues,

in this regard, you can point to past failures of a more creative kind of education to “catch on.” Much interesting and valuable research concerning the measurement and development of the creative thinking abilities was reported around the turn of the Century. Apparently this work was almost completely ignored. Again in the 1920’s and 1930’s there was a resurgence of interest in creative thinking. This interest became lost in the furor created by Progressive Education and was ignored or forgotten. Why should we expect current efforts to be any more successful than those around 1900 and again in the and 1930’s? (“Must Creative Development” 44).

So, why should we expect our current efforts to be any more successful than the numerous attempts of the past? What can be done to make people take notice and care?

There is a noted “Creativity Crisis” in which students steadily lose creative ability from kindergarten to adulthood, as well as a decline in creative thinking from 1990 to 2010. There is a “Skills Gap” in which students are not learning the skills that business wants, which is creating problems for both unemployed adults looking for jobs, as well as businesses looking to fill positions. What if these two phenomena are not simply separate instances, but actually part of one larger problem—a Creative Achievement Gap?
Chapter 4: The Design Process and Design Thinking

Knowing that there is a Creativity Crisis, the next logical place to explore is the idea of creative thinking. Creative thinking can take many forms, so the ideas presented are those that are most relevant to this discussion, keeping in mind that the reason for this exploration is to address the problems indicated by the Creative Achievement Gap.

The Design Process

In researching this work, I have encountered many books from many different types of authors about a variety of subjects. However, digging deeper, I noticed a strange phenomenon— that a number of authors have a five to seven step process or list of ideas that everyone should know. Whether the reader is interested in thinking differently, becoming more successful in business, or interested in education, there are “Seven Survival Skills” (Wagner), “Six Essential Aptitudes” (Pink), “Seven Essential Life Skills” (Galinsky), “Five Creative Competencies of Creative Intelligence” (Nussbaum), and the “Five-Step Methodology of Disciplined Dreaming” (Linkner). While there is surely value in what each author has attempted by synthesizing their ideas, I wondered, how does this all fit together? If there are numerous lists of skills, aptitudes, and competencies that people should know and use, pretty soon that list is going to grow so large that it becomes unwieldy and unusable.

Looking at this in the bigger picture, what all of these authors are speaking of are either steps in a creative process (or creative methodology), or the skills necessary for completing steps in a process. Linkner’s Five-Step Methodology of Disciplined Dreaming is a process, whereas Nussbaum’s Five Creative Competencies of Creative Intelligence are skills that are necessary to be successful within the confines
of a process. Both are important components of the creative process and creativity in general, but for the time being, let us focus on process. As a designer, one of the first things learned early in design education is a design process. I stress a process, because there is not just one design process; there are many variations. In fact, in How Do You Design? A compendium of Models, Hugh Dubberly collected over 100 design and development processes from people with a variety of backgrounds. He states, “Everyone designs. The teacher arranging desks for a discussion. The entrepreneur planning a business. The team building a rocket. Their results differ. So do their goals. So do the scales of their projects and the media they use. Even their actions appear quite different. What’s similar is that they are designing. What’s similar are the processes they follow” (3). This is important to note because it is not only designers who use a creative process, but many types of people working in many types of professions.

For this work, I would like to define a specific design process that can be referenced throughout. The process is presented in the book, Simplex: A Flight to Creativity, by Min Basadur. Please note that Mr. Basadur’s book was released under two names; the above mentioned as well as, The Power of Innovation: How to Make Innovation a Way of Life & How to Put Creative Solutions to Work. Both books contain the same content, they simply have different names and covers. (An interesting point to link back to our discussion in chapter three about the difference in the perceptions of creativity and innovation.) This choice may also come as a surprise since Mr Basadur is namely a business consultant, not a designer. Though it may appear complex, I find this process to actually be, as the name should suggest, simple.

Noted in figure 4.1, The Simplex process is based on three main stages; stage one is problem finding, stage two is problem solving, and stage three is solution implementation. Contained in the three stages are four quadrants: Generating, conceptualizing, optimizing, and implementing. These quadrants correspond to two individual steps each, or eight in total. The eight steps—in order—are problem finding, fact finding, idea finding, evaluating & selecting, planning, selling the idea, and action (Basadur 54,85).
The beauty of any design process is two fold; first, it acts as a guide for the individual to organize their thoughts and ideas. Instead of just jumping into a problem without a frame of reference, the individual can be deliberate about where to start and how to follow through the process. Second, it acts as a road map for a group of people working together. If everyone is looking at the same process, confusion is less likely because everyone knows exactly where they should be in the process. This is equally beneficial for
all involved, whether they be designers or business executives. Most designers—or design firms such as IDEO—have their own way of engaging the design process, thus making it necessary for me to be explicit in this matter.

That said, anyone can use a creative process to solve problems. Take, for example, a mother whose small child who keeps getting into the kitchen cabinets and by emptying them, creates a large mess and tripping hazard for others. She realizes that she needs to keep her child out of the cabinets, so she purchases locks for the cabinets. Once installed, her child can no longer gain access to the cabinets. In this scenario, the mother has completed the design process, using the main three stages. In stage 1, she realizes that the baby playing in the cabinets is not ideal, in stage 2, the mother solves the problem by deciding that she must lock the cabinets, and stage 3, she implements the design by installing the locks. Even though it is a simple and common scenario, one should be cognizant of the fact that every day people use a creative process, they just aren’t aware they are doing it as it has become second nature.

Taking that same scenario and utilizing the design process a bit more in depth, one can get an even better understanding of its capabilities. For instance, the same mother realizes that her child is making a mess by emptying the cabinets, and that she and others trip on this mess. However, instead of jumping ahead to ideas, she contemplates a number of ways to keep her floors free of debris, which is really the problem, not her child getting into the cabinets. Knowing that, she thinks about different ways to keep her floors clear: empty out the cabinets, lock the cabinets, remove the cabinets all together, remove the floor, make all of the items in the cabinet float, give her child his own cabinet and space to play, etc. Seeing this list, she realizes that while some of the ideas are interesting, they are not particularly feasible (such as floating items). After looking at her options, she decides that she doesn’t want to spoil her child’s fun, so giving him his own cabinet space for his toys is reasonable, and that she can lock all of the other cabinets, thus everyone in the house would know that there may be objects on the floor near that specific cabinet. She discusses the idea with her husband who agrees, and they clear out a cabinet and install locks on the others. Here, the mother has followed nearly all of the eight steps in the process. The
difference in this second situation is that using the creative process more in depth, the mother has been much more intentional about her decision making. In this matter, she has become a Design Thinker.

What Dubberly so eloquently stated earlier relates directly to this discussion; out of diverse backgrounds and topics, authors are discussing the idea of process. And they are discussing process because, as Dubberly put it, “Everyone designs.” And if everyone designs, then everyone can think like a designer. Everyone can be “design thinkers” (3).

**Design Thinking: A Process for Creativity**

As a designer, I do not particularly like the term “Design Thinking.” Perhaps it is because it became another of those popular business buzz words, but the term has always seemed a bit confusing and vague. Or perhaps it is the absurd notion that somehow, designers alone own this type of thinking process. However, since it is a popularly used term, I will continue to begrudgingly use it for consistency’s sake.

In *Design Thinking: Integrating Innovation, Customer Experience and Brand Value*, Thomas Lockwood describes Design Thinking as “primarily an innovation process. It is a way to help discover unmet needs and opportunities and to create new solutions. It is part of the ‘fuzzy front end’ and is also being adopted to help reinvent businesses, as in solving ‘wicked’ problems and business transformation.” The “fuzzy front end” refers the beginning of the design process, where there is a problem or opportunity area, but the exact problem or opportunity isn’t clear yet (See Figure 4.1, “Generating”). As well, “wicked” problems are often part of the fuzzy front end, and are extremely large, really complicated problems. Examples of wicked problems are problems such as global warming, or universal healthcare. Wicked problems are so named because they—in reality—aren’t just one problem, but a number of interrelated problems, which makes solving a wicked problem extremely complicated and difficult. Wicked problems are a “class of social system problems which are ill-formulated, where the information is confusing,
where there are many clients and decision makers with conflicting values, and where the ramifications in the whole system are thoroughly confusing” (Buchanan 15). Lockwood continues that Design Thinking is “essentially a human-centered innovation process that emphasizes observation, collaboration, fast learning, visualization of ideas, rapid concept prototyping, and concurrent business analysis, which ultimately influences innovation and business strategy” (Lockwood, Foreword).

In the past decade, some of the most influential voices on the topic have come from brothers Tom and David Kelley, and Tim Brown, all who happen to be a part of the company, IDEO. According to their website, IDEO “is an award-winning global design firm that takes a human-centered, design-based approach to helping organizations in the public and private sectors innovate and grow.” Ideo defines Design Thinking as,

A human-centered approach to innovation that draws from the designer’s toolkit to integrate the needs of people, the possibilities of technology, and the requirements for business success...Design thinking is a deeply human process that taps into abilities we all have but get overlooked by more conventional problem-solving practices. It relies on our ability to be intuitive, to recognize patterns, to construct ideas that are emotionally meaningful as well as functional, and to express ourselves through means beyond words or symbols. Nobody wants to run an organization on feeling, intuition, and inspiration, but an over-reliance on the rational and the analytical can be just as risky. Design thinking provides an integrated third way. (“Our Approach,” ideo.com)

For those already familiar with the term Design Thinking, these definitions might make perfect sense. However, if this is the first time one has heard this terminology, it can seem a bit overwhelming or unclear. After years of researching the topic, my personal definition of Design Thinking is “using a design process in a context other than design.” While Lockwood and IDEO’s definitions may be more specific, the specifics that they mention—observation, collaboration, intuition, pattern recognition—are all skills used in the design process, not the process itself as previously mentioned. Moving forward in this work, I will use my definition of Design Thinking.
As Tom and David Kelley state in their book, *Creative Confidence: Unleashing the Potential Within Us All*,

“As schools cut funding for the arts and high-stakes testing becomes more pervasive, creativity itself is
devolved, compared to traditional core subjects like math and science. Those subjects emphasize ways
of thinking and problem solving that have a clear-cut single right answer, while many real-world twen-
ty-first -century challenges require more open-minded approaches” (ch. 2). This is why Design Thinking
is important—most problems in business or life do not have just one “right” answer. The key is finding
the most feasible and appropriate answers, and Design Thinking is the process for doing so.
Chapter 5: Methodology

To better understand how students, parents, and teachers perceive the importance of creativity and innovation in k-12 education, I performed a small, quick preliminary study with each stakeholder group. The study included eight participants: four child participants, two parent participants, and two teacher participants. The outcome of this study was not meant to change the path of my research, but rather to indicate whether people—outside of those writing books on the subject—value creativity and innovation in education or not, and to reinforce the purpose of the research—to uncover options for addressing the Creative Achievement Crisis.

Preliminary Study

In recent years, works by Sir Kenneth Robinson (Out of Our Minds), Tony Wagner (The Global Achievement Gap, Creating Innovators: The Making of Young People That Will Change the World), Tom Kelley and David Kelley (Creative Confidence: Unleashing the Creative Potential Within Us All), and Bruce Nussbaum (Creative Intelligence: Harnessing the Power to Create, Connect, and Inspire) have tackled the ideas of creativity in education in order to educate tomorrow’s innovative leaders. The preliminary study focused on the three main stakeholders in education—the student, who presumably will enjoy a prosperous life if well educated for a career; the parents, whose priority is making sure their children receive the best education possible in order to get a job and become self-sufficient and successful, and the teachers whose job it is to teach the workforce of tomorrow. While a lot of people are discussing the current state of education, this study was focused on getting real answers from the stakeholder groups to see if their answers reflected the ideas the authors propose—that creativity is an important aspect of education.
Speaking with the stakeholders that are most affected by, or have the most effect on, the Skills Gap, my preliminary study was conducted with k–12 students, K–12 Teachers, and parents of K–12 students. Let me explain in more detail about each group.

**K–12 STUDENTS AS STAKEHOLDERS**

Students in grades k–12 were included in the study for a variety of reasons. To begin with, although the Skills Gap is thought of as a problem post graduation, it seems clear that waiting until post-graduation to deal with it is too late for those affected. It’s like signing someone up to run a marathon—a race that is 26.2 miles long—but never giving that person the proper training or direction, and expecting that they will not only be able to finish the race, but to be able to compete at a high level. Neither scenario makes much sense if the desirable end result is being successful. It is possible that in both scenarios certain people would be able to navigate their way through successfully, but then, what is the point of educating students if they must, in the end, educate themselves? Therefore, it seems fitting that students should be learning the skills necessary throughout their educational career and in a logical manner, not after their formal education has ended when they have to pick it up as they go along.

Not only a question of the Skills Gap, but the Creativity Crisis is affecting everyone as well. As previously mentioned, George Land’s study of children into adulthood showed that Kindergartners test at genius levels of creativity, only to have it drop off as the years go by, the biggest drop happening around the age of 10, or near the 4th grade (Kim 286). It seems only fitting to start from an early age and not only encourage students to use their creativity and creative thinking skills, but to develop them further instead of allowing them to disappear. Again, k–12 education seems the most valuable place to develop these necessary skills.
K-12 Teachers as Stakeholders

It makes sense that if the people most affected by the Skills Gap and Creativity Crisis are K-12 students, the people that are most responsible for their formal education, K-12 teachers, would also be stakeholders in the process. Teachers can either encourage or discourage creative behavior. Students trust that their teachers are giving them the tools they will need to succeed after they’re finished with their formal education. Please note that while it is understood that teachers are under the control of their administration, I feel that they are the stakeholders because of their personal relationships with their students. Administrations vary greatly depending on school district and state, so teachers are the much more stable and controllable variable. Teachers, while they must teach certain subjects, still have ultimate control over how they teach their students, and what they think is important. My study aimed to find out whether or not they felt that creativity was important, and if and how teachers utilized it or were willing to utilize it.

K-12 Parents as Stakeholders

While formal education is responsible for a great deal of a child’s education, parents of K-12 students also have a huge role in the education of their own children. As mentioned, administrations can vary greatly depending on district or even by state, so if a child is in an educational system that doesn’t formally teach children what the parents think is important, it is up to parent to fill in the gaps.

My preliminary study began by recruiting K-12 students, K-12 teachers, and parents of K-12 students to participate in various activities. Each group was recruited using existing contacts with K-12 teachers, both personal and professional. Using social media and email, I gave a brief explanation of the study and my interest in creativity and asked for volunteers. I also asked individuals to share this information with anyone else who they thought might be interested. In the end, my preliminary study included eight participants: four students, two parents, and two teachers.
My initial study involved two main components: a survey and an interview. The following are the specific activities that each group participated in:

**K-12 STUDENTS**
- Interview

**K-12 TEACHERS**
- Pre-Interview Survey
- Interview

**K-12 PARENTS**
- Pre-Interview Survey
- Interview

**Survey**

The online survey was given to the adult participants only, and was used before the interview to understand the participant’s feelings toward creativity and innovation in education. The questions were inspired from secondary research from Tony Wagner’s book, *The Global Achievement Gap: Why Even Our Best Schools Don’t Teach the New Survival Skills Our Children Need—and What We Can Do About It* in which Wagner discusses the “Seven Survival Skills.” As well, I used Sir Ken Robinson’s *Out of Our Minds: Learning to be Creative* on which to base my questions. In the survey, I asked adult participants to rank how important a list of skills and abilities were for three separate grade ranges: Kindergarten through fourth grade (roughly grade school in most U.S. Schools), fifth through eighth grade (roughly middle school in most U.S. schools), and ninth through twelfth grade (roughly high school in most U.S. Schools). Participants were also asked to define creativity and innovation in their own words, as well as answer six questions about whether creativity and innovation are important to teach in the same grade ranges as previously mentioned, and why or why not. This pre-interview survey was to help prime participants to
start thinking about the ideas of creativity and innovation, and also to understand how they personally defined both creativity and innovation. I felt this would aid in the interview process as they would already have given some thought to the topic before meeting face to face. This was also a great opportunity to see how the value of both creativity and innovation might be perceived differently for different age ranges. (See APPENDIX A: COMPLETE SURVEY FOR ADULT PARTICIPANTS)

**Interview**

The interview part of the study involved approximately an hour long discussion-type interview to understand more about the participant’s interest in creativity, and how important they perceived it to be.

Student participants were asked the following questions:

- When you grow up, what do you want to be?
- What is your favorite part about school?
- Are you creative?
- Does your teacher tell you that you’re creative?
- Do your parents tell you that you’re creative?
- Do you draw in school?
- Do you sing in school?
- Do you dance in school?
- Do you play in school?
- Do you exercise in school?

Adult participants were asked the following questions:

- When you hear the word “creativity,” what do you think of next?
- In what ways do you feel that schools should focus on teaching creativity?
- What could be the benefits of teaching kids to be more creative?
- What could be the potential pitfalls of teaching kids to be more creative?
- Would it concern you if schools started focusing on creativity?
- In what ways do you feel that schools should focus on teaching Innovation?
- What could be the benefits of teaching kids to be more innovative?
- What could be the potential pitfalls of teaching kids to be more innovative?
- Would it concern you if schools started focusing on innovation?
- Is there a difference between creativity and innovation?
For students, the interview was designed to reveal the students’ favorite parts of school. For adult participants, I was interested to see if both groups—the teachers and the parents—differed in their perceptions of the importance of creativity and innovation. During these interviews, I asked for clarification whenever necessary.

**Secondary Research**

While conducting the preliminary study, I also conducted a broad literature review. Beginning this research, I found the most interesting facet of education is that in the United States, we have been discussing the way in which children are educated for nearly one hundred years. One hundred years. It seemed a bit odd to me that, with over one hundred years of discussion, we are still no closer to understanding what the ideal education is, and in fact are doing a worse job educating students for the careers of tomorrow if the Skills Gap and Creativity Crisis are any indication. So, perhaps the problem lies in the fact that no one has taken a look at these ideas holistically, and instead of seeing them as separate ideas, bringing them together in a meaningful way, which is what my research aims to do.

**CHOOSING SECONDARY RESEARCH**

Utilizing secondary research in the form of books, I attempted to collect work from a variety of authors that are not about the exact same topic, but that when looked at as a whole, clearly live together as a whole. The topics range from types of education (Maria Montessori), to problems with education (John Holt), to the Skills Gap (Tony Wagner, Peter Cappelli), to creativity (E. Paul Torrance, George Land, Sir Ken Robinson, Keith Sawyer), to creative and Design Thinking skills (Edward de Bono, Tom Kelley and David Kelley, Tim Brown, Min Basadur) as examples. Books were chosen based not only by the topic, but also by the age of the book. Making a deliberate effort to find books old and new that would discuss
ways to affect the Skills Gap and Creativity Crisis, my assertion was that by doing so, a more clear, holistic picture of the current educational and business space—and the opportunities therein—could be explored.

In choosing secondary research, I understood that it was impossible for me to review every book by every author about each and every topic. So I hope the reader will be cognizant of the fact that though I attempted to be thorough, clearly more literature exists than I was able to include. This does not mean that it is not important; on the contrary, my hope is that this can be a starting point for others to add to and discuss further.

**REVIEWING SECONDARY RESEARCH**

For the sake of clarity, the lens through which I reviewed this literature is this: There is a Skills Gap and a Creativity Crisis that I combine to form the Creative Achievement Gap (see Chapters 2 & 3). Using my preliminary study as a starting point, I returned to the items contained in my survey that originated from Tony Wagner and Sir Ken Robinson. After reviewing this original list a number of times, it occurred to me that other authors may have come to the same conclusions, or have come up with completely different skills or components that they thought were important. From there, I took note of other authors or work mentioned, authors cited, as well as searched the university library and Amazon for titles that might prove valuable.

I collected information by reading and reviewing the books or chapters of books that were most appropriate given this lens, and noting the ideas that appeared regularly, that seemed different from other authors, or that just seemed interesting. Most books were reviewed in whole, but some books—especially different books by the same author—were partially reviewed, as some information was repeated, or did not necessarily fit within the scope of this research.
From this literature review, I was able to compile a long list of items relevant to the discussion about the Skills Gap and Creativity Crisis. Using handwritten cards with each item separate, I began moving the cards around, sorting and resorting items into different groups until all the information fit together in a logical way. In doing so, I began to see patterns within each group; after reviewing each group, I named them as follows: Skills, Character, Mindset, Values, and Community. These groups formed what I call “growth opportunities.” This seemed appropriate since each item offered opportunities for the viewer to develop each item or particular Growth Opportunity, which in turn would combat the Creative Achievement Gap—from five different perspectives.
Chapter 6: Results

Preliminary Study Findings

As stated previously, the purpose of the preliminary study was to understand the perceptions of creativity and innovation in K-12 education from the perspectives of students, parents, and teachers. The following are the results of that study.

Survey

In the multiple choice portion of my survey, I asked parents and teachers to evaluate the importance of items—collected from Wagner and Robinson—across grade categories. Dividing education into three groups—roughly grade school, middle school, and high school—I wondered if participants would weigh each topic differently for the different sets of grades. The results of the study showed that in each group, every topic was valued, though in 4 out of the 14 questions (How to Access Information, Entrepreneurialism, Collaboration Between Ages and Grades, and Leading by Influence) the K-4 group wasn’t valued quite as strongly as the other age groups (See Table 6.1).

In the open-ended portion of my survey, I asked participants to define “creativity” in their own words. All participants stated that creativity involved either coming up with new or original ideas, or making connections between ideas that had not been made before. When asked specifically if they thought that creativity (their own definition) was important in grades K-4, 5-8, and 9-12, every single one responded, “yes.” So, everyone surveyed—3 teachers and 3 parents—saw value in creativity in education.
Continuing the survey with open-ended questions, I asked participants to define “innovation” in their own words. I knew this question would be more challenging since they did not know ahead of time that they would be asked to define both creativity and innovation, thus not being able to form separate definitions ahead of time. Much like creativity, according to survey participants, innovation has to do with “newness,” but this time with mention of business (e.g. market, product, devices) and process.
Here, when asked to elaborate, one participant went so far as to say, “see creativity.” Three out of six participants also mentioned “create” or “creativity” as well in the explanation; interesting to note that when elaborating on creativity, not one participant mentioned innovation. In both instances, none of the participants offered an unusual or out of the ordinary definition. As participants were asked to complete this survey before meeting for their interview, this provided an initial impression of how they valued creativity and innovation.

**Interview**

The most fruitful part of my preliminary study was the interview process. The reason for this was that I left each interview open to follow the conversation as long as it stayed on the topic of creativity and innovation in education. As was the case of the survey, all participants discussed how and why they think creativity and innovation are important to teach students of all ages. (See Appendix C: Interview Transcripts)

**Final Research Results: Growth Opportunities**

Utilizing secondary research from numerous books on varying topics (design, education, business, thinking, etc.), I was able to narrow all of the information—in this case, a list of items—down into five separate categories (Growth Opportunities). As it turned out, for most items I was able to find more than one author who discussed the idea in some capacity, which proved to be rather interesting given the fact that the topics of each book covered a wide range of materials. Please note that the Growth Opportunities are comprised of skills, traits, attributes, principles, beliefs, and opportunities; however, these are spread throughout each of the five Growth Opportunities, so it was necessary for me to define each individual one with the general term “item” within each individual Growth Opportunity. In Table 6.2, the Growth Opportunity items are listed. The following explains each Growth Opportunity in greater detail.
<table>
<thead>
<tr>
<th>Skills</th>
<th>Character</th>
<th>Mindset</th>
<th>Values</th>
<th>Community</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creativity</td>
<td>Gritty/Persistent/Has Strong Work Ethic/Resilient/Perseverance</td>
<td>Grateful</td>
<td>Nurturing the Confidence to Try</td>
<td>Employing the Rights, Privileges, and duties of Citizenship</td>
</tr>
<tr>
<td>Creative Confidence (Potential)</td>
<td>Brave</td>
<td>Optimistic/Positive</td>
<td>Observing One’s Right to be Active/Importance of Activity</td>
<td>Community Service/Volunteering</td>
</tr>
<tr>
<td>Knowledge Mining/Making Connections/Symphony/Making Patterns/Association</td>
<td>Has Willpower/Volition/Intrinsic Motivation</td>
<td>Passionate/Full of Zest/Enthusiastic</td>
<td>Self-Directed Learning</td>
<td>Social Intelligence/Interpersonal Skills/Professionalism</td>
</tr>
<tr>
<td>Lateral Thought/Creative Thinking/Inductive Thinking</td>
<td>Assertive</td>
<td>Imaginative</td>
<td>Providing Privacy and Solitude/Autonomy, Trusting with Independent Work/Study</td>
<td>Mentorship/Sharing Wisdom/Learning Through Experience/Apprenticeship Programs</td>
</tr>
<tr>
<td>Generative Thought</td>
<td>Fair</td>
<td>Willing to Play with Ambiguities/Unpredictability</td>
<td>Encourage Expression of Personal Ideas</td>
<td>Employer &amp; Employee Shared Training</td>
</tr>
<tr>
<td>Framing/Reframing the Question/Problem</td>
<td>Has Integrity</td>
<td>Whimsical/Humorous/Playful/Fun/joy</td>
<td>Encourage Expression of Feelings</td>
<td>Alliances/Mutual Support/Partnership</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>Self-Reliant, Independent, Initiative, Self Confident</td>
<td>Experimental</td>
<td>Exploration of Creative Potential/Creative Intelligence/Discovering Creative Strengths/Empowering Creativity</td>
<td>Trust/Accountability</td>
</tr>
<tr>
<td>Reflectivity</td>
<td>Show Self Control</td>
<td>Maker, Tinkering, Doer</td>
<td>Making Creativity Routine</td>
<td>Networking/Building Connections</td>
</tr>
<tr>
<td>Divergent/Convergent Thought</td>
<td>Conscientious/Diligent</td>
<td>Purpose Driven</td>
<td>Conjecture about Possibilities/Playing with Ideas</td>
<td>Collaboration/Public &amp; Private Undertakings (Joint Efforts)</td>
</tr>
<tr>
<td>Abstract Thought</td>
<td>Intuitive</td>
<td>Adaptable/Embrace Change/Agile/Pivoting</td>
<td>Encouraging Original Thought &amp; Individuality/Uniqueness</td>
<td>Family Contributions to Education</td>
</tr>
<tr>
<td>Critical Thinking/Whole Brain Thinking/Integrative Thinking</td>
<td>Entrepreneurial</td>
<td>Eliminating/Delaying Judgments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Critical Evaluation of Ideas</td>
<td>Willing to be Wrong/Take Risks/Take on Challenges/Willing to Make Mistakes/Fail</td>
<td>Leaving to the Future</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reasoned Debate</td>
<td>Curious/Exploratory/Questioning/Seek Knowledge</td>
<td>Learning in Context</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Objectivity</td>
<td>Observational/Focused on Listening/Paying Attention</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Problem Solving</td>
<td>Empathetic/Compassionate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Action &amp; Experimentation</td>
<td>Willing to Change Perceptions/Perspectives</td>
<td></td>
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<tr>
<td>Oral Communication</td>
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<tr>
<td>Written Communication</td>
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<tr>
<td>Knowledge Application</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Accessing Information</td>
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<tr>
<td>Focus, Attention</td>
<td></td>
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<tr>
<td>Observation</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Systems Thinking</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**TABLE 6.2: GROWTH OPPORTUNITIES AND ITEMS**

All of the individual items that make up the Growth Opportunities: Skills, Character, Mindset, Values, and Community.
For an item to be considered in the group of “skills,” it had to be a capability that dealt with the gaining of conceptual knowledge—how to think about things—or a capability that dealt with a procedural skill—how to do things (“skills”). In this context, skills can be taught, learned, and improved upon. For instance, one can—without too much difficulty—learn or improve their skills in divergent/convergent thought or their powers of observation.

The items in the group “character” are innate personality traits (“character”). These items are much more personal than those in the skills group, as each individual has varying degrees of each trait. Where one person may be brave, but lacking motivation, another may be highly motivated but lacking self control. There are differing schools of thought as to whether or not one can actually learn to acquire a character trait that they don’t already possess. If one can learn new character traits, it is certainly a different process than learning a “skill.” For example, learning how to critically evaluate ideas is a more tangible goal than learning to be more self confident, since the latter involves more personal feelings and emotions. So, for our intents and purposes here, when I discuss “character” it is as a trait that might be possible to learn, but can definitely be acknowledged and improved in those who already have the trait in some degree.

Mindset is an attitude or outlook that can be altered, nurtured, or both (“mindset”). While it is possible that there are overlaps with Character that I have not clearly laid out, that’s not exceedingly important for our discussion. For example, it is possible that someone could have the character trait of optimism. However, it’s also possible that a person can simply have an optimistic outlook without having an
optimistic personality. The difference here is intent; in Mindset, each item is approached and applied deliberately. Further, the optimistic person may be optimistic in all aspects of life, but the optimistic thinker need only apply optimism to specific problems. In his book *Six Thinking Hats*, Edward de Bono describes six different colored (metaphorical) “hats” that one would “put on” in order to direct their thinking. When “wearing” the “red hat,” the user is led to think about things from an emotional perspective, whereas wearing the “black hat” asks the user to think more cautious and careful (47, 71). This is the kind of meaning I intend with this group. While it is admirable that someone might want to improve their empathy skills in all aspects of their life, in this context it is only important that they are open to be empathetic thinkers in this group.

VALUES

In this context I am suggesting that this particular group of items are shared beliefs between individuals that are used to foster creativity (“values”). Values are tricky in that they can vary between individuals, communities, and families, and can constantly evolve and change between each of those three groups. While people may have individual values for themselves, a person who believes in affecting the Skills Gap and Creativity Crisis should have strong beliefs in the items in the Growth Opportunity, Values. For instance, if a business leader would like to work on her company’s creative skills, then fostering an environment that makes creativity routine and values autonomy is essential. While there are likely more values than the items listed here, these were the most apparent from my research from the particular items I chose, so those are the limitations.

COMMUNITY

The items in the group “community” involve shared opportunities between individuals (Stevenson et all, “community”). I chose the name community because I thought it invoked a feeling of interconnectedness, which is what this group is all about—connections between people. Contained in this group are the
different ways in which people can make connections for purposes of learning, to enlarge one’s social group (for professional purposes), and to be an active member of the community. For instance, one might be able to learn to become a carpenter on their own, but being an apprentice to a master carpenter will lead to presumably better learning and results compared with an individual who simply read a book on the topic. In this group, the idea is that working with others can often lead to richer understanding than simply learning alone.

**THINK, FEEL, AND DO**

Defining the Growth Opportunities is a way to begin to understand how to combat the Creative Achievement Gap. However, while researching definitions for “volition” in this work, I inadvertently stumbled upon the theory of “the trilogy of the mind.” In the *Journal of the History of Behavioral Sciences*, Ernest R. Hilgard says, “For two hundred years many psychologists took for granted that the study of mind could be divided into three parts: cognition, affection, and conation. They disagreed on whether these should be considered faculties of the mind or merely a classification of aspects of mental activity, but the threefold division was repeatedly revived” (107-117). I found this idea particularly interesting as a different way to think about the growth opportunities; however the terminology seemed to be a bit too clinical. I reframed the “trilogy of the mind” for this work to be Think (cognition), Feel (affection), and Do (conation).

In this context, to “think” is to intentionally direct one’s mind toward something; to use one’s mind actively and purposefully (“Think”). To ponder, consider, or ruminate on a subject. To “feel” or feeling is to experience an emotion or sensation, or to have a belief or impression, especially without an identifiable reason (“do”). And finally, to “do” is to perform an action, the precise nature of which is often unspecified; for clarity in this work, thinking will not be considered an action.

But what does thinking, feeling, and doing have to do with this discussion? The growth opportunities themselves are categories of items, whereas thinking, feeling, and doing are the different ways a person engages with the items in the Growth Opportunity. For example, when discussing the idea of critical
thinking, one would primarily use their thinking abilities to gain the best results, not their emotional, or feeling side since critical thinking is about being objective not emotional. However, there are times when feeling is appropriate, such as when one is being reflective about their work. And sometimes, it’s most appropriate to just start doing something, in the case of experimenting or volunteering (see TABLES 6.3 A–E). In all, the understanding should be that not only are there different Growth Opportunity items, but also different ways to approach each item. While I’ve tried to be explicit in how each item was grouped and marked as think, feel, and do, I understand that there is room for discussion and interpretation among these. What is more important than perhaps the exact placement of each item, is the understanding that there are different ways that one can approach the item; if one feels that they can utilize a Growth Opportunity not in the way specified here, that is welcomed as part of the overall understanding of the opportunities to combat the Creative Achievement Gap.

ALL TOGETHER

Dividing all the items into the separate Growth Opportunities, I then used the definitions of “think, feel, and do” to further categorize each item. It should be noted that these categories are based on my interpretation of the definitions of Think, Feel, and Do, as discussed previously. Since the list of items originally grew out of the ideas of specific authors, it seemed important to add those authors back into the equation to be able to easily see who had each idea. The following tables (TABLES 6.3 A–E) represent this information.

These tables quickly show how many times Think, Feel, and Do are represented in each Growth Opportunity item, and make comparison of Think, Feel, and Do easy between each item. For instance, in Table 6.3 A for the Skill Growth Opportunity one can easily see that Feel is less represented than both Think and Do. In each item, one can also tell which items are supported by more authors. Referring again to Table 6.3 A., there is no question that creativity is better backed by the reviewed authors than reflectivity is.
### Table 6.3

#### Growth Opportunity: Skills

<table>
<thead>
<tr>
<th>Skills</th>
<th>THINK</th>
<th>FEEL</th>
<th>DO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lateral Thought/Creative Thinking/Inductive Thinking</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Generative Thought</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Framing/Reframing the Question/Problem</td>
<td></td>
<td></td>
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<tr>
<td>Data Analysis</td>
<td></td>
<td></td>
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<tr>
<td>Reflectivity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divergent/Convergent Thought</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Abstract Thought</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Critical Thinking/Whole Brain Thinking/Integrative Thinking</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Critical Evaluation of Ideas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reasoned Debate</td>
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</tr>
<tr>
<td>Objectivity</td>
<td></td>
<td></td>
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<tr>
<td>Problem Solving</td>
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<td></td>
</tr>
<tr>
<td>Action &amp; Experimentation</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Out Communicating</td>
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<tr>
<td>Written Communication</td>
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<tr>
<td>Oral Communication</td>
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<tr>
<td>Knowledge Application</td>
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</tr>
<tr>
<td>Accessing Information</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Focus, Attention</td>
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<tr>
<td>Observation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Systems Thinking</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Growth Opportunity: Character

<table>
<thead>
<tr>
<th>Character</th>
<th>THINK</th>
<th>FEEL</th>
<th>DO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gritty/Persistent/Has Strong Work Ethic/Resilient/Perserverence</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Brave</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has Willpower/Voluntary/Initiative</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assertive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fair</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hard Integrity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Reliant/Independent/Initiative, Self Confident</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Show Self Control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concern/Carer/Diligent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intuitive</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Notes

A. GROWTH OPPORTUNITY: SKILLS 17 items fall into the Think category, 6 items in Feel, and 11 items in Do.
B. GROWTH OPPORTUNITY: CHARACTER 1 item falls into the Think category, 7 items in Feel, and 6 items in Do.
C. GROWTH OPPORTUNITY: MINDSET 7 items fall into the Think category, 8 items in Feel, and 6 items in Do.
D. GROWTH OPPORTUNITY: VALUES 8 items fall into the Think category, 5 items in Feel, and 3 items in Do.
E. GROWTH OPPORTUNITY: COMMUNITY 0 items fall into the Think category, 1 item in Feel, and 9 items in Do.

(Continued)
### Growth Opportunity: Mindset

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mindset</td>
<td>Grateful</td>
<td>Optimistic/Positive</td>
<td>Passional/Anticipating</td>
<td>Imaginative</td>
<td>Willing to play with Ambiguities/Unpredictability</td>
</tr>
<tr>
<td></td>
<td>Passionate</td>
<td>Enthusiastic</td>
<td>Open-Minded</td>
<td>Intellectual</td>
<td>Experimented</td>
</tr>
<tr>
<td></td>
<td>Purposeful</td>
<td>Emotional</td>
<td>Purposeful</td>
<td>Purposeful</td>
<td>Purposeful</td>
</tr>
<tr>
<td></td>
<td>Empathetic</td>
<td>Empathetic</td>
<td>Confident</td>
<td>Critical</td>
<td>Empathetic</td>
</tr>
<tr>
<td></td>
<td>Nimble</td>
<td>Nimble</td>
<td>Nimble</td>
<td>Nimble</td>
<td>Nimble</td>
</tr>
</tbody>
</table>

**THINK**

| X | X | X | X | X |

**FEEL**

| X | X | X |

**DO**

| X | X | X | X | X | X |

(Continued)

### Growth Opportunity: Values

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Values</td>
<td>Nurturing the Confidence to Try</td>
<td>Observing Others to Actively Participate in Learning</td>
<td>Encouraging the Right to Be Active/Participate</td>
</tr>
<tr>
<td></td>
<td>Self-Directed Learning</td>
<td>Improvising/Adapting</td>
<td>Exploring the Potential for Creative Expressions</td>
</tr>
<tr>
<td></td>
<td>Encourage Expression of Personal Ideas</td>
<td>Encourage Expression of Feelings of Growth</td>
<td>Encourage Expression of Creativity</td>
</tr>
<tr>
<td></td>
<td>Exploring the Potentiality of Creative Implications</td>
<td>Encouraging Creativity</td>
<td>Encouraging Creative Behavior</td>
</tr>
<tr>
<td></td>
<td>Making Creativity Routine</td>
<td>Encouraging the Right to Be Creative/Original</td>
<td>Encouraging the Right to Be Creative</td>
</tr>
<tr>
<td></td>
<td>Encouraging the Right to Be Creative/Individual</td>
<td>Encouraging the Right to Be Creative/Individual</td>
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<td></td>
<td>Encouraging the Right to Be Creative/Individual</td>
<td>Encouraging the Right to Be Creative/Individual</td>
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<td>Encouraging the Right to Be Creative/Individual</td>
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</tr>
</tbody>
</table>

**THINK**

| X | X | X | X | X | X |

**FEEL**

| X | X | X | X |

**DO**

| X | X | X |

(Continued)

---

**Table 6.3: Continued**
From there, the information about authors, growth opportunities, and think, feel, and do, was then compared in a number of ways. To begin with, an overview of each author was created, separated by specific Growth Opportunity, counting the amount of times the author was mentioned within that particular opportunity, as well as the number of times their work was associated with the trilogy of mind—think, feel and do. The end result is a ranking of each author, so one can easily see which authors discussed what topics, and how many times they did so within the given Growth Opportunity, from most to least (TABLES 6.3 A–E).

This can show a number of things. For instance, looking back at TABLE 6.3 A with the Growth Opportunity Skills, it would appear that the total number of items in Think are 17, in Feel, 6, and in Do, 11. That is true if looking at the authors as a group; however, if we are to count the instances of Think, Feel, and Do by authors individually, we get different numbers: Think, 73, Feel, 24, and Do, 33. Take, for example,
“creativity” in the Skills Growth Opportunity; since there are 12 authors who mention creativity, it’s actually discussed 12 times more than “reasoned debate” which only has one mention by author. This gives a better idea of the actual importance of Think, Feel, and Do in each Growth Opportunity.

Not only does this clarify the actual values of Think, Feel, and Do in each Growth Opportunity, but it also shows which authors appear most in each. Again, going back to Table 6.3 A, it is not clear which authors have more interest in the particular Growth Opportunity (in this case, in Skills). However, Table 6.4 A makes it clear which authors are mentioned most often; in this case, Robinson, Wagner, de Bono, and Sawyer are all ranked highest, meaning that in Skills, these four authors discussed this Growth Opportunity the most. Compare that with Table 6.4 B: Growth Opportunity: Character, where Tough, Lillard, Galinsky, and Llewellyn & Silver rank higher. This is useful for a number of reasons. First off, think of all of these tables as a sort of “awareness” or “diagnostic” tool that one could use to figure out how well they engage with each of the Growth Opportunities. For instance, using Table 6.2, a student could do a self-assessment and determine that they have strengths in one set of Growth Opportunities, but weaknesses in others. Using that simple table, the student could then choose items to focus on based on whether they would like to improve upon skills they already have, or whether they would like to acquire skills that they do not already possess. Or perhaps the student would choose one Growth Opportunity to explore further, so they could then use any of Tables 6.3 (A–E) for more information about authors who discussed particular items. The student could also look at Table 6.3 (A–E) and decide that they would like to focus on items that are particular to Feel, and easily know which items those are. This is a helpful tool because, unlike others who have boiled down their skills or processes to five or six main ideas, the entire itemized list of Growth Opportunities covers a greater number of items; however that could also make it a bit more cumbersome to utilize, if not for the separate tables. I used an example of a student, but feel that it could be just as useful for a parent, teacher, or anyone in business as well.
<table>
<thead>
<tr>
<th>Growth Opportunity: Skills (Can be taught, learned, and improved)</th>
<th>Growth Opportunity: Character (Personality traits; Can be acknowledged and improved)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>23 Items</strong></td>
<td><strong>10 Items</strong></td>
</tr>
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(CONTINUED)
From there, we can break this down further by think, feel, and do; now one can easily see which author’s work deals with which part of the trilogy of the mind. For instance, Robinson is represented in both Think and Feel most highly, while Tough is represented in Feel and Do (Table 6.5). This is useful if one wanted to engage with the categories of Think, Feel, and Do regardless of Growth Opportunity.

The data was also sorted by Think, Feel, and Do according to the original item, but without the specific authors. Here, the topics are no longer grouped as a Growth Opportunities, but as lists within Think, Feel,

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and Do (Table 6.6). This is a beneficial way to look at the data if a person wanted to work specifically on a category such as Think. Here the user could look reference Table 6.6, and quickly have a list of items with which to engage.

All of these resources together offer people a variety of options, depending on their need and context. For instance, a business manager feels that his team needs to work on taking action since they tend to

Table 6.5. Think, Feel, and Do | Authors

Authors listed by rank in each category of Think, Feel, and Do. The number corresponds with how many times they are mentioned in each category, regardless of the Growth Opportunity. This also shows that of all literature reviewed, Think has the most mentions at 143. Do is in the middle with 133, and Feel has the least mentions with 108.

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<td>Kelley &amp; Kelley</td>
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51
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<td>• Creativity</td>
<td>• Creativity</td>
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<td>• Knowledge Mining/ Making Connections/Symphony/Making Patterns/Association</td>
<td>• Creative Confidence (Potential)</td>
<td>• Data Analysis</td>
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<td>• Reflectivity</td>
<td>• Critical Evaluation of Ideas</td>
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<td>• Generative Thought</td>
<td>• Critical Evaluation of Ideas</td>
<td>• Reasoned Debate</td>
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<td>• Framing/Reframing the Question/Problem</td>
<td>• Objectivity</td>
<td>• Problem Solving</td>
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<tr>
<td>• Data Analysis</td>
<td>• Problem Solving</td>
<td>• Action &amp; Experimentation</td>
</tr>
<tr>
<td>• Reflectivity</td>
<td>• Gritty/Persistent/Has Strong Work Ethic/Resilient/Perseverance</td>
<td>• Oral Communication</td>
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<tr>
<td>• Divergent/Convergent Thought</td>
<td>• Brave</td>
<td>• Written Communication</td>
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<td>• Abstract Thought</td>
<td>• Has Willpower/Willpower/Volition/Intrinsic Motivation</td>
<td>• Knowledge Application</td>
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<tr>
<td>• Critical Thinking/Whole Brain Thinking/Integrative Thinking</td>
<td>• Assertive</td>
<td>• Accessing Information</td>
</tr>
<tr>
<td>• Critical Evaluation of Ideas</td>
<td>• Fair</td>
<td>• Observation</td>
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<td>• Reasoned Debate</td>
<td>• Has Integrity</td>
<td>• Brave</td>
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<td>• Objectivity</td>
<td>• Self-Reliant, Independence, Initiative, Self Confident</td>
<td>• Assertive</td>
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<td>• Problem Solving</td>
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<td>• Show Self Control</td>
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<td>• Intuitive</td>
<td>• Conscientious/Diligent</td>
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<td>• Optimistic/Positive</td>
<td>• Experimental</td>
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<td>• Systems Thinking</td>
<td>• Passionate/Full of Zest/Enthusiastic</td>
<td>• Maker, Tinkering, Doer</td>
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<td>• Whimsical/Full of Zest/Enthusiastic</td>
<td>• Adaptable/Embrace Change/Age/Pivoting</td>
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<td>• Optimistic/Positive</td>
<td>• Purpose Driven</td>
<td>• Entrepreneurial</td>
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<td>• Adaptable/Embrace Change/Age/Pivoting</td>
<td>• Willing to be Wrong/Take Risks/Take on Challenges/Willing to Make</td>
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<td>Mistakes or Fail</td>
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<td>• Adaptable/Embrace Change/Age/Pivoting</td>
<td>• Willing to Change Perceptions/Perspectives</td>
<td>• Observational/Focused on Listening/Paying Attention</td>
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<td>• Entrepreneurial</td>
<td>• Nurturing the Confidence to Try</td>
<td>• Observing One’s Right to be Active/Importance of Activity</td>
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<td>• Curious/Exploratory/Questioning/Seek Knowledge</td>
<td>• Providing Privacy and Solitude/Autonomy/Trusting with Independent</td>
<td>• Self-Directed Learning</td>
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<tr>
<td>• Willing to Change Perceptions/Perspectives</td>
<td>• Work/Study</td>
<td>• Learning in Context</td>
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<td>• Self-Directed Learning</td>
<td>• Encourage Expression of Personal Ideas</td>
<td>• Employing the Rights and Privileges, and duties Citizenship</td>
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<td>• Exploration of Creative Potential/Creative Intelligence/Discovering Creative Strengths/Empowering Creativity</td>
<td>• Encourage Expression of Feelings</td>
<td>• Community Service/Volunteering</td>
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<td>• Making Creativity Routine</td>
<td>• Encouraging Original Thought &amp; Individuality/Uniqueness</td>
<td>• Social Intelligence/Interpersonal Skills/Professionalism</td>
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<td>• Conjecture about Possibilities/Playing with Ideas</td>
<td>• Trust/Accountability</td>
<td>• Mentorship/ Sharing Wisdom/Learning Through Experience/Apprenticeship</td>
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<td>• Encouraging Original Thought &amp; Individuality/Uniqueness</td>
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<td>Programs</td>
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<td>• Eliminating Judgments</td>
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<td>• Employer &amp; Employee Shared Training</td>
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<td>• Looking to the Future</td>
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<td>• Alliances/Mutual Support/Partnership</td>
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<td>• Networking/Building Connections</td>
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<td></td>
<td>• Collaboration/ Public &amp; Private Undertakings (Joint Efforts)</td>
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<tr>
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<td>• Family Contributions to Education</td>
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**TABLE 6.6. THINK, FEEL, AND DO ITEMS**

Items listed by Think, Feel, and Do, regardless of original Growth Opportunity. Note that some items appear in more than one list since items could be more than one category.
come up with a lot of ideas, but are slow to actually make progress. He knows that they should focus on Do, so he uses Table 6.6 to take stock of the items listed there. From there, he can narrow down specifically what the team—or even perhaps individual team members—need to work on in order to become more successful. Then using Table 6.5, he finds books by Wagner and Tough, since their work mentions Do more than the other authors. If he decides to utilize Tables 6.3 (A–E), he can look at each Do category separated by Growth Opportunity; perhaps in doing this, he realizes that his team actually needs the most work on Do in Mindset. Or he instead uses Tables 6.4 (A–E) and realizes that the most Do Growth Opportunities are in Community. Each table gives the manager a different perspective into his problem, and different ways to approach it.

In another example, a teacher wants to get her students more involved in the Growth Opportunity of Community. They are bright children, but they only ever work with each other—students of the same age from the same area. Our teacher first makes use of Table 6.3 e, and takes note of the list of items that are in Community. She is excited, and wants to have a better idea of how to teach her students about each topic, so she uses Table 6.4 e to note authors who ranked highest in this Growth Opportunity. She sees that Cappelli and Gatto are at the top of the list, so she finds books by them to explore further. However, she wonders if Cappelli and Gatto are ranked highest there, how do they fit in with Think, Feel, and Do? So she looks at Table 6.5 to see that Cappelli is ranked highest in Do, while Gatto is ranked fairly high in both Feel and Do. Since both are ranked so well in Do, she decides to also look at Table 6.6, and finds that while she still wants her students to explore the Growth Opportunity of Community, there are more ideas on the list Do that she thinks will be beneficial to her class.

In both these scenarios, I have tried to make clear how a person might engage with these tools as either for awareness or for diagnosing strengths or weaknesses. I also wanted it to be clear that the benefit is not only to students, but to anyone who wants to actively pursue these specific Growth Opportunities. The Creative Achievement Gap is not just a hurdle for students, but also for anyone who may at one
time or another, seek employment. An older worker who has worked in a less creative environment may lack in the Skills group, but have an enormous advantage in the Community group, as they have years of experience collaborating and great interpersonal skills. While a student fresh out of business school has great networking skills (Community), but does not have the appropriate mindset for a creative work environment. This distinction should be clear—no matter the age or seniority level, the Growth Opportunities offer value.
Chapter 7: Implications

Going back to the beginning, I think it’s important to see how the ideas of the Skills Gap, Creativity Crisis, and the Design Process fit together. To begin with, business claims that potential employees do not have the skills that the business wants and needs, called the Skills Gap. Students, parents, and teachers are frustrated with the culture of testing in schools, and while testing is at an all time high, creativity in students is at an all time low resulting in a Creativity Crisis (Kim 285). Both together have formed what I have called the Creative Achievement Gap.

In chapter 2, I discussed the essential features of 21st century education as developed by Daniel Greenberg, founder of Sudbury Valley School. In figure 7.1, these six features are categorized through the lens of the Growth Opportunities. One might note that the Skills Growth Opportunity is not represented, but that is not a problem as we will see. Though the five Growth Opportunities are important, there are times when they won’t all be utilized at the same time, and that is expected (see figures 7.4 and 7.5). While some of these features could possibly be in more than one Growth Opportunity, for clarity I chose the lens that seemed most appropriate. Taking this into consideration, one can see how the Growth Opportunities are entwined in this new vision for education.

Also in chapter 2, I mentioned a study conducted by Harris Interactive for the DeVry Career Advisory Board, as discussed by Cappelli. The study examined the gap between the importance of skill and worker’s current skill level, as perceived by employers. They differentiated between “no deficit, small deficit, moderate deficit, and severe deficit” (Cappelli, ch.3). A few points of interest here are that first it would appear that the group of “no deficit” describes typical work related skills that are present in most
As society rapidly changes, individuals will have to be able to function comfortably in a world that is always in flux. Knowledge will continue to increase at a dizzying rate. This means that a content-based curriculum, with a set body of information to be imparted to students, is entirely inappropriate as a means of preparing children for their adult roles. (Agility, willing to play with ambiguities.)

People will be faced with greater individual responsibility to direct their own lives. Children must grow up in an environment that stresses self-motivation and self-assessment. Schools that focus on external motivating factors, such as rewards and punishments for meeting goals set by others, are denying children the tools they need most to survive. (Intrinsic motivation, integrity.)

The ability to communicate with others, to share experiences, to collaborate, and to exchange information is critical. Conversation, the ultimate means of communication, must be a central part of a sound education. (Collaboration, Learning through experiences.)

As the world moves toward universal recognition of individual rights within a democratic society, people must be empowered to participate as equal partners in whatever enterprise they are engaged in. Students (and teachers) require full participation in running educational institutions, including the right to radically change them when needed. (Alliances, Collaboration, Accountability.)

Technology now makes it possible for individuals to learn whatever they wish, whenever they wish, and in the manner they wish. Students should be empowered with both the technology and the responsibility for their own learning and educational timetable. (Self-directed learning.)

Children have an immense capacity for concentration and hard work when they are passionate about what they are doing, and the skills they acquire in any area of interest are readily transferable to other fields. Schools must thus become far more tolerant of individual variation and far more reliant on self-initiated activities. (Self-directed learning, learning in context.)

**FIGURE 7.1. ESSENTIAL FEATURES OF 21ST CENTURY EDUCATION THROUGH GROWTH OPPORTUNITIES**

Taking the original six features developed by Greenberg, the Growth Opportunities that most closely represent each idea are highlighted and the individual items are noted in italics.

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every job and the “small deficit” group relates to traditional educational subjects (see ch. 2 for details). But what is most interesting are the two groups of “moderate deficit” and “severe deficit.” Taking those two groups and applying the Growth Opportunities (see FIGURE 7.2), one can start to see how the lack of proficiency in the items of the Growth Opportunities have affected business.

Speaking of business, while it is understood that there are a variety of reasons a person chooses to become educated, the end goal for most students is to get a good job that affords them a living wage, and one in which they have the opportunity for personal and professional growth. While some become successful in business from their education in our current system, many are not. There are a few reasons for this.
First, in the current discussion about the Skills Gap, there’s no clear goal or defined problem; there is a lot of discussion about what skills people are lacking, but not real clarity. Speaking as a designer, this is a problem since one cannot properly address a problem if it is not evident what the actual problem is. Specifically defining Growth Opportunities, it is much easier to address the problems of the Creative Achievement Gap since the items are straightforward. It is easy to see how one might work on observation or written communication, whereas working on the Skills Gap in general is ambiguous and too broad.
Let us take a look at the current system of K–12 education, and how the Skills Gap and Creativity Crisis are handled. As illustrated in FIGURE 7.3, one can see that the reason people seek education is to get a good job. However, the path from K–12 education to business is not a linear one, and it is intercepted by both the Skills Gap and the Creativity Crisis. Since these are just vague terms, it is up to individuals, parents, teachers, or school districts as to how they are addressed, so for the most part, they remain an ignored part of education, even though there is great value in exploring both. From my secondary research of a variety of authors, it is clear that creativity and innovation are important to many people.

If, however, we implement the Growth Opportunities in the current educational system, the links between the Creative Achievement Gap and Growth Opportunities are more clear (FIGURE 7.4). Here still,
The reason for education is to get a good job that earns a living wage that offers personal and professional growth opportunities, to encourage lifelong learning, and to become an informed, engaged, and service minded member of society.

In the current educational system, the Creative Achievement Gap can be addressed through utilizing Growth Opportunities. Each individual still takes a unique path through education and Growth Opportunities, but the importance lies in having clearly defined items to engage with and either learn or improve upon.

Each student takes their own individual educational path, but instead of being led haphazardly through the Skills Gap and Creativity Crisis, the student has points of contact through each individual item in the Growth Opportunities. Having a better understanding of what makes up the Creative Achievement Gap, the students, parents, and teachers are better able to engage with aspects of education that have not been addressed as well. This gives students even more control over educational choices, as they can now make up for any imbalances, since first they are easily detectable, and second not specifically dependent on the school system to teach them. For instance, if a student realizes that they are not receiving much education in Community, that student has a variety of options outside the classroom.
such as volunteering, becoming active in social campaigns, or even reaching out to members of the business world for mentorship or apprenticeship opportunities. Implementation of the Growth Opportunities into the current educational system would be the responsibility of each individual student, parent, and teacher, and not necessarily cause a change in the current curriculum.

Authors such as Tom and David Kelley (of IDEO) have been discussing the idea of Design Thinking for nearly a decade—that using the design process outside of the context of design is not only possible, but a necessity of the future. This can be seen as well in the d.School at Stanford that they started; The d.school isn’t an actual college and no one gets a degree from the d.School. However, students from all different backgrounds and different majors work together, using the design process, to solve big, complex problems. This is a wildly popular program, especially given that it doesn’t produce any of its own graduates (Kelley and Kelley, ch. 1).

As well, IDEO created a website, designthinkingforeducators.com, which is a website for educators, devoted to the idea of implementing Design Thinking in classrooms. It also includes a “toolkit” that teachers can download in order to help with implementation, and numerous instructional videos as well. This is a handy and comprehensive resource for educators in the current educational system. If the d.School and the Design Thinking for Educators website are any indication, creative thinking not only matters to designers, but to anyone that can understand its value in the work of the future.

In the ideal education system (Figure 7.5), schools and business alike are responsible for education. Here, people will learn by using the design process and Growth Opportunities together. Each of the five Growth Opportunity categories are present in all parts of the design process, and each individual item can be used to facilitate completion of the steps of the process. For instance, eliminating or delaying judgment (see Values) can be used in Step 2: Fact Finding in order to maintain an open mind while investigating a problem, then also used in Step 5: Evaluation and Selection in order to choose the most
Growth Opportunities in the Ideal Educational System
Systematic ways to use Growth Opportunities to Address the Creative Skills Crisis

K-12 Education and Business work together to address the Creative Skills Crisis using the Design Process and Growth Opportunities.

In the ideal educational system, the Creative Achievement Gap is addressed through utilizing Growth Opportunities and the Design Process (Design Thinking). Growth Opportunities are important abilities in the Design Process, and one can utilize those abilities in different steps of the process. Note that individuals need not use the whole Design Process every time, and can start anywhere in the process.
appropriate solution for a problem. Or perhaps one would use adaptability in step 5: Evaluation and Selection when being flexible in evaluating ideas, as well as in step 7: Selling the Idea, when one must adapt to the person or group they are selling their idea to. Using the design process in this way creates a system in which creativity and innovation are simply part of a bigger process, which takes the mystery out of creativity, therefore elevating its status from only something done in art or music class, and creating a culture of intentional, thoughtful, creative thinkers.

As another example, a fifth grade teacher would like to implement Design Thinking and the Growth Opportunities into her classroom. However, she thinks that perhaps using the entire design process is a bit beyond her students’ abilities, so she completes steps 1 through 3 herself—problem finding, fact finding, and problem definition—and introduces the problem to her class, with the facts that she has learned. From there she has them find, evaluate and select ideas (steps 4 and 5), then take action on their idea (step 8). She chose to skip steps 6 and 7 because planning and selling the idea are concepts she plans to add later after her class has become more comfortable with first coming up with ideas. As discussed previously, she and her students will utilize the Growth Opportunity items in order to complete the step. So, in steps 1 through 3, the teacher uses divergent and convergent thinking and intuition to find a problem (step 1), curiosity, empathy, and playing with ideas to find facts about the problem (step 2), and critical evaluation of ideas, data analysis, and framing the problem in problem definition (step 3). In step 4, her students use divergent thought and are experimental and imaginative to create ideas, while she nurtures their confidence to try while allowing them to work independently. In step 5, students must be adaptable and able to change perspectives in order to critically evaluate ideas. Finally in the last step, step 8, students must be self-confident, diligent, optimistic, persistent, and willing to be wrong in order to action on the idea. (Note that the italicized, colored words are the individual Growth Opportunity items.) While this is a very high-level explanation, one can see how the design process and the Growth Opportunity items combined can foster creative learning in order to affect the Creative Achievement Gap.
As the Kelley brothers state in *Creative Confidence*, “Roger Martin, Dean of the University of Toronto’s Rotman School of Management, once told us that what stuck out to him about designers is that they always act with intention. While others may unconsciously go with the default option, design thinkers make everything a conscious and original choice: from how they arrange their bookshelf to how they present their work. When they look around the world, they see opportunities to do things better and have a desire to change them” (ch. 1). Combining Design Thinking—applying a design process to topics outside of design—and the Growth Opportunities creates a systematic process that people of all backgrounds can utilize to battle the Creative Achievement Gap.

How are the Growth Opportunities represented in K–12 education? I would argue that they are not, as most schools in the U.S. do not engage any of the Growth Opportunities in any meaningful way (though I do acknowledge that there are likely schools somewhere that focus on some of the Growth Opportunity items, such as the Sudbury Valley School). For instance, teachers expect kids to be persistent and work hard, but they don’t necessarily teach or help develop persistence or grit in their students. Or, though curiosity is said to be valued in the classroom, sometimes it is seen as an undesirable quality. In their work in the *Creativity Research Journal* titled *Creativity: Asset or Burden in the Classroom?*, Westby and Dawson say that “research has suggested that traits associated with creativity may not only be neglected, but actively punished” (2). This is no way to be construed as a poor reflection of the abilities of our teachers; this is an indication of our school systems, and what the systems value. In my discussions with teachers, they claimed that they would overwhelmingly like to be able to develop students better, but by having such rigid standards that they must meet—based on testing—they simply don’t have the resources to do so. We want students who experiment, but we discourage them by rewarding only the “correct” answers, and not how much they explored. We want them to learn to be trustworthy and accountable, but don’t give them real situations in which to do so. A group project may give them a taste of accountability, but what about if they were responsible for a real project for a local company?
For example, local company A could enlist the help of high school juniors and seniors to come up with solutions about how local company A can more effectively reuse or recycle their waste. Or perhaps local company B asks grade school children to imagine ways that the company might make riding bicycles safer. Bringing in people from outside, and helping children learn in context, projects that have “real world” effects allow kids to understand ideas more thoroughly, and having a person separate from the teacher judging or grading pushes kids to work harder than if they were simply asked to write a paper about different ways to make riding bicycles safer. It’s this type of differentiation—group projects in school with limited consequences versus real world projects with people outside of the school where there are real repercussions (beyond a bad grade)—that can be impacted by utilizing the Growth Opportunities.

Having surveyed a great deal of literature, I have compiled a large list of Growth Opportunity items. What I find special about this list is that it has been created from books not only about business and education, but also about the Skills Gap, creativity, Design Thinking, different ways of thinking (or thinking in general), innovation, genius, and specific topics such as grit, or how to think like DaVinci, etc. If this eclectic list says anything, it is that there is not just one place where folks are discussing Growth Opportunities.

The Growth Opportunities are very important in this discussion. Math and Science will always be important aspects of education, and this work is in no way to be construed as taking the place of the typical subjects: Science, Math, History, etc. However, teaching subjects alone does not create well-rounded, bright, engaged, curious, innovative students. The Growth Opportunities offer a greater variety of alternatives to people that can be applied in typical subjects if need be, but that also offer people choices that are not currently taught—for the most part—in k-12 education. As Tom and David Kelley mention, “Those subjects emphasize ways of thinking and problem solving that have a clear-cut single right answer, while many real-world twenty-first -century challenges require more open-minded approaches” (Kelley and Kelley, ch. 2).
So what does this all mean? If we, as a country, are really serious about addressing the Creative Achievement Gap, we need to elevate the importance of Design Thinking in education and business. Using the design process for any number of problems or opportunities opens up the possibilities of everyone’s unlocking their own creative potential. Using a process is a clear methodology that is not a secret—anyone can engage with the design process and be successful, as long as they are willing to utilize the process, and in this case, the Growth Opportunities within the process. A process can be replicated, which is essential for making creativity routine; like any process, the more a person uses it, the better they become at it, and the better they become at it, the more comfortable they are with it. But process is only part of the story.

For years, businesses have used the mission, vision, values statement as a way for people outside of the company to understand the culture inside the business. Mission, vision, values (mvv) statements vary from business to business, but the most important thing that they do is describe a culture for the company. A mission statement explains the company’s reason for existence, while a vision statement describes the organization as it would appear in a future successful state. A values statement describes what the organization believes in and how it will behave (shrm.org). A potential employee can look at the mvv statement and decide if their goals align with those of the company. This ensures that the potential employee not only understands the culture, but also shares in the mvv. Employees shouldn’t have any kind of culture shock because their goals should be clearly stated up front.

Secondly, the mission, vision, and values of schools should be clear reflections of the school and district. So, why don’t schools utilize the mvv as a tool as much as business? While some schools do have some sort of mission, vision, values statement, I wonder how many parents read them before sending their child to that school? How many read them before choosing a new district to move into? I sought out the mvv statements from various corporations and schools. Large companies and corporations would have the most need for such documents because in a small company, mission, vision, and values can be communicated easily from person to person, but in a large company, there is a need to have a mvv in
writing, so it can reach all employees. I chose schools that are in the United States to get a sense of how different schools articulated their mission, vision, and values. Upon review of corporate and educational MVV statements, I found that a lot of the Growth Opportunities were mentioned. While I won’t go into detail about every one, I found this example—the first from a large corporation and the second a small school district—of particular interest. In both examples, the idea of integrity is discussed:

Integrity (Corporation)

- We always try to do the right thing.
- We are honest and straightforward with each other.
- We operate within the letter and spirit of the law.
- We uphold the values and principles of [the organization] in every action and decision.
- We are data-based and intellectually honest in advocating proposals, including recognizing risks.
  (“Our Purpose, Values and Principles”)

We will exhibit the highest levels of openness, honesty, and integrity. (School District)

- We will talk openly to the person with whom we have a problem, and if not resolved follow the appropriate line of authority for a solution.
- We will be both approachable and accessible.
- We will work to build trust among all our constituencies.
  (“New Albany Schools: Leading the Way for Excellence in Education”)

What’s important about this is the contrasting ways in which each are worded. In the first example—which is from a large corporation—the main idea, integrity, is basically described by the following points. In this way, the viewer is clear about what the business means by integrity. In the case of the school district, the supporting points don’t really describe or explain the main point; in fact, the secondary points actually make the main idea of integrity seem more vague. What are the definitions of “approachable” or “accessible?” How will they build trust? Also, in the case of the corporation, they use the present tense, which makes the message very clear and powerful. For the school, the use of the future tense—we will—creates the idea that these are not things that they currently do, but things that they plan or hope
to do in the future. This is not meant to criticize only the school in question, but to start asking questions of our schools. The following examples are mission, vision, and value statements from school districts from the state of Ohio:

Kilbourne Middle School is a student-centered educational community

- We strengthen academic, emotional and social skills. We embrace diversity. We celebrate individual qualities and achievements. We prepare students for a successful future. (“Kilbourne Middle School: Mission and Vision”)

District Mission: Toledo Public Schools Public Schools’ mission is to

- produce competitive college and career ready graduates through a rigorous curriculum across all grade levels by implementing Ohio’s New Learning Standards with fidelity. (“Toledo Public Schools: Mission, Vision, Core Commitments”)

The purpose of the Hilliard City School District is to

- enable students to become productive citizens in an ever-changing world by providing them with quality work. Quality work is meaningful, engaging, challenging, compelling and satisfying; and causes students to acquire knowledge and skills valued by both students and community. (“Hilliard City Schools: Vision, Mission, Beliefs”)

Within ten years, all students in the Columbus Public Schools

- will demonstrate that they have acquired a high level of skills, knowledge and understanding in each subject area. Students will be excited about learning and share that excitement with others. The schools will be safe, comfortable and accepting places for students to learn. Individuals will have a sense of respect for themselves and others. (“Continuous Improvement Plan Columbus Public Schools 2000-2005”)

While superficially these seem okay, they don’t actually say anything meaningful. “We strengthen academic, emotional and social skills. We prepare students for a successful future.” While these statements are honorable, is that not what k-12 education is for, if nothing else? What are the academic, emotional, and social skills specifically? How does the school prepare students for a successful future? Each of these districts, while well intentioned, have made their goals somewhat ambiguous, and schools have a responsibility to clarify what these kinds of statements actually mean to students and parents going forward. This does not mean that they must adhere to the Growth Opportunity items specifically in order to do this—though I will make an argument for this idea later—but we, as a society, should expect that
if a district creates something as a goal or vision or path for the district, it should be explicit, and the
district should be held accountable for its failure or success.

If businesses have mission, vision, value statements and schools have mission, vision, value statements,
why don’t individuals, students, and parents, have these as well? And if everyone has a mvv statement,
shouldn’t they all align? If the goal of k–12 Education is actually to educate children to get good jobs in
order to become successful, productive members of society, and business wants employees that are
innovative, therefore creative, shouldn’t their mvv look similar, if not identical? How does one know
if their personal goals of education align with those who provide education or with those of current
businesses if it is not first articulated?

mvv statements can vary greatly, but this is understandable due to the nature of the mission and vision
parts. I’ve been discussing them as a combined idea, but in reality they are three separate parts. The
trouble is that not every company or school uses the terms mission, vision, and values consistently and
according to their proper definitions (in terms of the mvv statement) so it was fitting to discuss them
as a whole. But if a mission explains an entity’s reason for existence, and the vision describes how that
organization will appear in the future, there are bound to be a wide variety of perfectly appropriate mis-
sion and vision statements, just as companies offer a wide variety of products and services. However, the
real opportunity lies in the idea of the values statement, which describes what the organization believes
in and how it will behave. This is where there should be alignment between k–12 education, parents,
students, and business, if closing the Creative Achievement Gap is truly the end goal.

Most of all, if we really want to eliminate the Creative Achievement Gap, we absolutely must be willing
to accept the challenge of creating a shared set of principles (or the values part of the mvv). In the
following, I will discuss how these shared principles can align educators, students, parents, workers
and businesses (the stakeholders), and create a map for eliminating the Creative Achievement Gap. If
**Skills**

- Celebrate Creativity
- Encourage and nurture creative confidence (potential) in self and others
- Be open to making connections and patterns
- Work relentlessly to engage in creative thinking and lateral thought; think intentionally
- Value generative thought
- Become comfortable framing and reframing questions and problem
- Utilize data analysis
- Spend time in meaningful reflection
- Understand and value both divergent and convergent thought
- Value abstract thought
- Constantly pursue better critical thinking, whole brain, and integrative thinking skills
- Be critical when evaluating ideas
- Learn to engage in reasoned debate
- Be inexhaustibly objective
- Become a master problem solver
- Take action; fearlessly experiment
- Become an expert at oral communication
- Write clearly and communicate openly
- Apply knowledge consistently
- Know how and where to access information
- Focus sharply; pay attention
- Tirelessly observe
- Understand how all variables interrelate; practice systems thinking

**Mindset**

- Be grateful
- Have an optimistic and positive outlook
- Have passion and zest and a sense of enthusiasm
- Be wildly imaginative
- Be willing to comfortably play with ambiguities and unpredictability
- Do not be afraid to be whimsical and playful; find the fun, joy, and humor even in the serious
- Experiment
- Make, tinker and do
- Be driven by purpose
- Be adaptable and easily embrace change; use agility as a strength
- Think like an entrepreneur
- Be willing to be wrong and make mistakes; be devoted taking on risks and challenges
- Fail spectacularly
- Cultivate curiosity and exploration; ask questions and continually seek knowledge
- Be observant and pay attention; listen intently
- Be endlessly empathetic and compassionate; put yourself in other’s shoes
- Be willing and delighted to change perceptions and perspectives

**Values**

- Nurture the confidence to try in self and others
- Value each individual’s right to be active
- Value self-directed learning
- Provide privacy and solitude and entrust with autonomy and independent study
- Encourage expression of personal ideas
- Encourage expression of feelings
- Encourage exploration of creative potential and empower creativity
- Make creativity routine
- Value conjecture about possibilities and encourage play with ideas
- Encourage original thought and individuality
- Eliminate snap judgments
- Value looking to the future
- Value learning in context

**Community**

- Employ the rights, privileges, and duties of citizenship
- Value community service and volunteering
- Become socially intelligent and practice interpersonal skills and professionalism
- Value mentorship and learning through experience and rediscover the value of apprenticeship programs
- Engage in employer and employee shared training
- Create alliances and bonds of mutual support and partnership
- Gain Trust and prove accountability
- Find value in networking and building connections with other groups and individuals
- Seek Collaboration opportunities and contribute in public and private undertakings (joint efforts)
- Understand the immeasurable value of family contributions to education

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**Shared Principles for Stakeholder Alignment**

*Using Growth Opportunity Principles as a map to align educators, students, parents, workers and business*

**TABLE 7.1. SHARED PRINCIPLES TO CLOSE THE CREATIVE ACHIEVEMENT GAP**

*Using Growth Opportunity principles as an alignment map between stakeholders.*

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69
everyone’s principles were already aligned, there wouldn’t be a Creative Achievement Gap in the first place, because there would be no disconnect between educational goals and needs and business goals and needs. The Growth Opportunities fill this role, and can be utilized as just such an alignment map (Table 7.1).

Table 7.1 imagines the Growth Opportunity items as shared principles for stakeholder alignment. What this means is that, for schools that are concerned with closing the Creative Achievement Gap and businesses that seek to be innovative, all stakeholders must be in alignment with the Growth Opportunity principles. For instance, if a business truly values creativity and innovation, these Growth Opportunity principles should make sense and likely be things that the company already pursues, whereas a company that talks about being innovative but eschews these principles is likely not that innovative of a company after all. The beauty of alignment is that while each stakeholder should agree to the principles set forth, it in no way dictates how each individual, school, or business does so. There is no set order, no prescriptive method, just a set of principles that can be used as a map to guide all parties in the same direction, but along their own path.

While a list of principles is certainly a starting point, and each stakeholder is free to pursue each principle however they like, it makes sense to provide a bit of structure to those who may be overwhelmed with all of the principles as a whole. For those, Table 7.2 was created as a more structured map of each principle, organized by “easier” principles to use, followed by “moderate” and “more difficult.” These were defined by two main barriers to implementation which are “resources” and “paradigm shift.” The resources considered were time, money, and manpower—how much time, money, or how many people are needed to implement the principle? The less of each of these resources needed, the easier the implementation. Paradigm shift refers to the amount that a culture needs to change in order to implement the principle. Paradigm shifts can be difficult, especially if trying to change a rigid culture, mostly because the principles to be implemented are not widely accepted or trusted. For instance, it is far easier for a school or company to implement the principle of “observation” because most individuals or groups don’t
**Shared Principles for Stakeholder Alignment: Ease of Implementation**

*Using Growth Opportunity Principles as a map to align educators, students, parents, workers and business*

<table>
<thead>
<tr>
<th>Easier</th>
<th>Moderate</th>
<th>More Difficult</th>
</tr>
</thead>
<tbody>
<tr>
<td>These Growth Opportunity principles need few additional resources and/or a small paradigm shift</td>
<td>These Growth Opportunity principles need a small amount of additional resources and/or a moderate paradigm shift</td>
<td>These Growth Opportunity principles need a moderate amount of additional resources and/or a large paradigm shift</td>
</tr>
</tbody>
</table>

- **Easier**
  - Celebrate Creativity
  - Encourage and nurture creative confidence (potential) in self and others
  - Value generative thought
  - Spend time in meaningful reflection
  - Value abstract thought
  - Be inexhaustibly objective
  - Write clearly and communicate openly
  - Apply knowledge consistently
  - Know how and where to access information
  - Focus sharply; pay attention
  - Tirelessly observe
  - Be assertive
  - Be fair
  - Be conscientious and diligent
  - Trust your intuition
  - Be grateful
  - Have an optimistic and positive outlook
  - Do not be afraid to be whimsical and playful; find the fun, joy, and humor even in the serious
  - Experiment
  - Make, tinker, and do
  - Be driven by purpose
  - Cultivate curiosity and exploration; ask questions and continually seek knowledge
  - Be observant and pay attention; listen intently
  - Nurture the confidence to try in self and others
  - Value each individual’s right to be active
  - Encourage expression of personal ideas
  - Encourage expression of feelings
  - Encourage exploration of creative potential and empower creativity
  - Value conjecture about possibilities and encourage play with ideas
  - Encourage original thought and individuality
  - Value looking to the future
  - Value learning in context
  - Value community service and volunteering
  - Find value in networking and building connections with other groups and individuals
  - Seek collaboration opportunities and contribute in public and private undertakings (joint efforts)
  - Understand the immeasurable value of family contributions to education

- **Moderate**
  - Be open to making connections and patterns
  - Work relentlessly to engage in creative thinking and lateral thought; think intentionally
  - Become comfortable framing and reframing questions and problem
  - Utilize data analysis
  - Understand and value both divergent and convergent thought
  - Constantly pursue better critical thinking, whole brain, and integrative thinking skills
  - Be critical when evaluating ideas
  - Learn to engage in reasoned debate
  - Become an expert at oral communication
  - Understand how all variables interrelate; practice systems thinking
  - Be the epitome of integrity
  - Radiate self-confidence; be self-reliant and independent
  - Show self control
  - Have passion and zest and a sense of enthusiasm
  - Think like an entrepreneur
  - Make creativity routine
  - Eliminate snap judgments
  - Engage in employer and employee shared training
  - Create alliances and bonds of mutual support and partnership
  - Become socially intelligent, and practice interpersonal skills and professionalism

- **More Difficult**
  - Become a master problem solver
  - Take action; fearlessly experiment
  - Be gritty, persistent, and resilient; maintain a strong work ethic and above all, persevere
  - Be boldly, unapologetically brave
  - Utilize personal willpower and volition; be intrinsically motivated
  - Be wildly imaginative
  - Be willing to comfortably play with ambiguities and unpredictability
  - Be adaptable and easily embrace change; use agility as a strength
  - Be willing to be wrong and make mistakes; be devoted taking on risks and challenges
  - Fail spectacularly
  - Be endlessly empathetic and compassionate; put yourself in other’s shoes
  - Be willing and delighted to change perceptions and perspectives
  - Value self-directed learning
  - Provide privacy and solitude and entrust with autonomy and independent study
  - Employ the rights, privileges, and duties of citizenship
  - Value mentorship and learning through experience and rediscover the value of apprenticeship programs
  - Gain Trust and prove accountability

**TABLE 7.2: SHARED PRINCIPLES FOR STAKEHOLDER ALIGNMENT: EASE OF IMPLEMENTATION**

Ranking the Growth Opportunity principles according to ease of implementation from easier, to moderate, to most difficult. Ease is defined by the amount of additional resources necessary for implementation, as well as the amount of paradigm shift necessary within the particular entity.
see it as being particularly threatening, whereas asking people to “fail spectacularly” is likely to cause quite a bit more concern. Because people may feel as though implementing the “most difficult” principles are risky—for students who are worried about their grade, for workers who are worried about losing their job—only with adherence and acceptance by everyone will it likely become part of the culture. The barriers for implementation—resources and paradigm shift—can vary depending on the current culture of the school, business, or organization, and vary between the individual principles. Also, one might encounter one barrier, both barriers, or neither barrier, depending on the organization. In the following, I have explained briefly each Growth Opportunity principle in the terms of ease of implementation.

The easier group of Growth Opportunity principles (FIGURES 7.2 and 7.3 A) are categorized together as they need few additional resources to be implemented or a small paradigm shift, or both. For instance, it takes little to no money or manpower to “celebrate creativity.” A business might find that it requires no shift in paradigm, meaning they already celebrate creativity, or it may require a small shift in paradigm, meaning that they don’t currently celebrate creativity, but can begin to implement it right away with little backlash. Implementation of these principles is generally the easier of the three groups. This group has the smallest barrier to implementation of the three groups.

The “moderate” group of Growth Opportunities principles (FIGURES 7.2 and 7.3 B) need a small amount of additional resources or a moderate paradigm shift, or both. For instance, to “become comfortable framing and reframing questions and problems” might only involve a small amount of resources in the form of additional education for stakeholders (therefore time, money, and manpower). Implementation may require a moderate paradigm shift where stakeholders will have to first understand and accept the benefit of framing and reframing questions. Once the benefit is understood and accepted, it may then take additional time for the stakeholder to become comfortable implementing the principle. This group has a smaller barrier to implementation than the “easier” group, but larger barrier of implementation than the “more difficult” group.
In the “more difficult” group of Growth Opportunities principles (Figures 7.2 and 7.3 C), a moderate amount of additional resources or a large paradigm shift, or both are needed. This group or principles takes the longest to implement, as they require time—working on each principle—in order to flourish. Take, for example, to “fail spectacularly.” Here, the amount of resources necessary are few, but in most cases, this kind of thinking is a huge paradigm shift for the stakeholder, since most people try to actively avoid failure. The amount of time that it takes people to become comfortable with this new principle is likely going to be significant. In another example, in order for one to “gain trust and prove accountability,” does not take a great deal of money or manpower; however, to gain trust and prove accountability requires a significant amount of work on the principle as well as time.

Tables 7.1 and 7.2 combined offer great opportunity and flexibility, while at the same time, aligning all stakeholders in the process of addressing the Creative Achievement Crisis. Suppose the list of Growth Opportunity principles were printed and hung in every home, school, and office in the United States; what is the benefit? By utilizing the Growth Opportunity principles as shared principles for stakeholder alignment, there is a unifying road map for everyone involved to navigate through the Creative Achievement Gap. And while a map shows one where they currently are and their chosen destination, each individual path to that destination can and will vary depending on the individual and the other stakeholders they interact with. Though all schools and businesses share the same Growth Opportunity principles, the ways they choose to pursue them can vary considerably. For example, one could jump right in and just pick and choose the principles they feel they need to work on the most, or one could be more deliberate and decide that they would like to choose the Growth Opportunity principles with the smallest barrier to implementation, so they choose from the “easier” list. Or perhaps someone is interested the long term growth of their organization, so they choose from the “most difficult” list, even knowing the barrier to implementation is larger. There is no wrong way to proceed, as the Growth Opportunity principles simply act as a map to follow—there are many ways to get to the same destination.
### Shared Principles for Stakeholder Alignment: Ease of Implementation: Easier

*Growth Opportunity Principles by ease of implementation and author*

#### Easier

<table>
<thead>
<tr>
<th>Principle</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Celebrate Creativity</td>
<td>Lillard, Robinson, Nussbaum, Land &amp; Jarman, de Bono, Torrance, Cross, Basadur, Kelley &amp; Kelley, Linkner, Hunter, Sawyer</td>
</tr>
<tr>
<td>Encourage and nurture creative confidence (potential) in self and others</td>
<td>Kelley &amp; Kelley, Land &amp; Jarman, de Bono, Nussbaum, Ray &amp; Myers</td>
</tr>
<tr>
<td>Value generative thought</td>
<td>Robinson</td>
</tr>
<tr>
<td>Spend time in meaningful reflection</td>
<td>Lillard</td>
</tr>
<tr>
<td>Value abstract thought</td>
<td>Robinson</td>
</tr>
<tr>
<td>Be inexhaustibly objective</td>
<td>Robinson, Gelb</td>
</tr>
<tr>
<td>Write clearly and communicate openly</td>
<td>Wagner, Torrance, Galinsky</td>
</tr>
<tr>
<td>Apply knowledge consistently</td>
<td>Wagner</td>
</tr>
<tr>
<td>Know how and where to access information</td>
<td>Wagner</td>
</tr>
<tr>
<td>Focus sharply; pay attention</td>
<td>de Bono, Torrance, Galinsky, Lillard, Neumeier</td>
</tr>
<tr>
<td>Tirelessly observe</td>
<td>Tom Kelley, Sawyer, de Brabandere &amp; Alan Iny, Jiwa</td>
</tr>
<tr>
<td>Be assertive</td>
<td>Lillard</td>
</tr>
<tr>
<td>Be fair</td>
<td>Tough</td>
</tr>
<tr>
<td>Be conscientious and diligent</td>
<td>Tough</td>
</tr>
<tr>
<td>Trust your intuition</td>
<td>Robinson, Giudice &amp; Ireland, Ray &amp; Myers</td>
</tr>
<tr>
<td>Be grateful</td>
<td>Tough, Hunter</td>
</tr>
<tr>
<td>Have an optimistic and positive outlook</td>
<td>Tough, de Bono, Hunter, Michalko, Gelb</td>
</tr>
<tr>
<td>Do not be afraid to be whimsical and playful; find the fun, joy, and humor even in the serious</td>
<td>Wagner, Torrance, Nussbaum, Tom Kelley, Pink, Giudice &amp; Ireland Ray &amp; Myers, Sawyer, Gelb</td>
</tr>
<tr>
<td>Experiment</td>
<td>Wagner, Robinson, Gelb</td>
</tr>
<tr>
<td>Make, tinker, and do</td>
<td>Nussbaum, Sawyer, Wagner, Tom Kelley, Holt, Hunter, Sawyer</td>
</tr>
<tr>
<td>Be driven by purpose</td>
<td>Wagner, Land &amp; Jarman, Hunter, Pink, Ray &amp; Myers</td>
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</tbody>
</table>

#### TABLE 6.4

<table>
<thead>
<tr>
<th>Shared Principles for Stakeholder Alignment: Ease of Implementation: Easier</th>
</tr>
</thead>
<tbody>
<tr>
<td>These Growth Opportunities need few additional resources and/or a small paradigm shift, faster to implement.</td>
</tr>
</tbody>
</table>
• Be open to making connections and patterns
  Nussbaum, Land & Jarman, Hunter, Galinsky, Pink, Michalko, Sawyer, Wagner

• Work relentlessly to engage in creative thinking and lateral thought; think intentionally
  Robinson, de Bono, Basadur, Wagner, Sawyer, De Brabandere & Alan Iny

• Become comfortable framing and reframing questions and problem
  Robinson, Cross, Torrance, Nussbaum, de Bono, Nussbaum, Sawyer, Neumeier

• Utilize data analysis
  Lillard, Wagner

• Understand and value both divergent and convergent thought
  Robinson, de Bono, Land & Jarman, Torrance, Basadur, Hunter, Sawyer, de Brabandere & Alan Iny

• Constantly pursue better critical thinking, whole brain, and integrative thinking skills
  Wagner, de Bono, Galinsky, Llewellyn & Silver, Gelb, Cross

• Be critical when evaluating ideas
  Robinson, Sawyer

• Learn to engage in reasoned debate
  Robinson

• Become an expert at oral communication
  Wagner, Basadur, Galinsky

• Understand how all variables interrelate; practice systems thinking
  Giudice & Ireland, Pink, Wagner, Gelb, Neumeier

• Be the epitome of integrity
  Tough, Giudice & Ireland

• Radiate self confidence; be self-reliant and independent
  Gatto, Llewellyn & Silver, Lillard, Wagner, Robinson, Tough

• Show self control
  Lillard, Tough, Galinsky

• Have passion and zest and a sense of enthusiasm
  Wagner, Tough, Tom Kelley, Linkner, Giudice & Ireland, Neumeier, Gelb

• Think like an entrepreneur
  Wagner

• Make creativity routine
  Nussbaum, Tom Kelley, Linkner, Sawyer

• Eliminate snap judgments
  Land & Jarman, de Bono, Basadur, Ray & Myers, Gelb

• Engage in employer and employee shared training
  Cappelli

• Create alliances and bonds of mutual support and partnership
  Cappelli, Land & Jarman

• Become socially intelligent, and practice interpersonal skills and professionalism
  Tough, Basadur, Montessori, Giudice & Ireland

These Growth Opportunities need a small amount of additional resources and/or a moderate paradigm shift; slower to implement.
| TABLE 6.4: CONTINUED |

**Shared Principles for Stakeholder Alignment: More Difficult**

*Using Growth Opportunities as a map to align educators, students, parents, workers and business*

<table>
<thead>
<tr>
<th>More Difficult</th>
</tr>
</thead>
<tbody>
<tr>
<td>These Growth Opportunities need a moderate amount of additional resources and/or a large paradigm shift; slowest to implement</td>
</tr>
</tbody>
</table>

- **Become a master problem solver**  
  Wagner, de Bono

- **Take action; fearlessly experiment**  
  Wagner, Torrance

- **Be gritty, persistent, and resilient; maintain a strong work ethic and above all, persevere**  
  Tough, Lillard, Torrance, Tom Kelley, Hunter, Gelb, McGuiness, Kelley & Kelley, Neumeier

- **Be boldly, unapologetically brave**  
  Tough

- **Utilize personal willpower and volition; be intrinsically motivated**  
  Tough, Wagner, de Bono, Tom Kelley, Galinsky, Montessori, Llewellyn & Silver, Ray & Myers

- **Be wildly imaginative**  
  Wagner

- **Be willing to comfortably play with ambiguities and unpredictability**  
  Torrance, Tom Kelley, Gelb, Ray & Myers, de Brabandere & Alan Iny, Neumeier

- **Be adaptable and easily embrace change; use agility as a strength**  
  Wagner, Tom Kelley, Basadur, Nassbaum, de Brabandere & Alan Iny

- **Be willing to be wrong and make mistakes; be devoted to taking on risks and challenges**  
  de Bono, Tom Kelley, Linkner, Hunter, Galinsky, Giudice & Ireland, Robinson, Land & Jarman, Farson, Kelley & Kelley, Hunter, Giudice & Ireland; Gelb, Ray & Myers, Jiwa, Robinson, Farson, de Brabandere & Alan Iny, Neumeier

- **Fail spectacularly**  
  de Bono, Tom Kelley, Linkner, Hunter, Galinsky, Giudice & Ireland, Robinson, Land & Jarman, Farson, Kelley & Kelley, Hunter, Giudice & Ireland; Gelb, Ray & Myers, Jiwa, Robinson, Farson, de Brabandere & Alan Iny, Neumeier

- **Be endlessly empathetic and compassionate; put yourself in other's shoes**  
  Wagner, Kelley & Kelley, Land & Jarman, Tom Kelley, Kelley & Kelley, Lockwood, Pink, Ray & Myers, Jiwa

- **Be willing and delighted to change perceptions and perspectives**  
  de Bono, Galinsky, Pink

- **Value self-directed learning**  
  Montessori, Gatto, Galinsky, Llewellyn & Silver

- **Provide privacy and solitude and entrust with autonomy and independent study**  
  Gatto, Tom Kelley, Linkner, Kahneman, Gelb, Gatto

- **Employ the rights, privileges, and duties of citizenship**  
  Wagner, Tough

- **Value mentorship and learning through experience and rediscover the value of apprenticeship programs**  
  Wagner, Giudice & Ireland, Tough, Gelb, Cappelli, Gatto, de Bono

- **Gain Trust and prove accountability**  
  Tom Kelley, Hunter, Jiwa, Neumeier
Finally, as a way to connect these principles back to their original generators, TABLES 7.3 A–C show each Growth Opportunity principle, categorized by ease of implementation, with the addition of the original authors cited. In this way, if a person wanted to know more about the principle from the original source or sources, it is easily found in this view. It is important to note that although this is the group of authors I have compiled, there are many other sources (literature, videos, websites, etc.) related to each of the Growth Opportunity items and principles that I was not able to include, and should absolutely be utilized along with these authors’ work.

Taken holistically, the Growth Opportunity principles are not only useful in addressing the Creative Achievement Gap, but are also practical as a road map for becoming an engaged, lifelong learner—whether that means as a k–12 student, or as an adult. After all, the Creative Achievement Gap affects all ages; adults out of work are affected by the Skills Gap, just as students straight out of school are. And according to Kim’s research of Torrance and his creativity tests, nearly everyone has been affected by the Creativity Crisis in some capacity (Kim, 293). Simply put, we are all in this together.

Once we realize that we are all involved, we can begin to align our principles as a community, and have a specific reason to band together. The Growth Opportunity items and principles define the issues of the Creative Achievement Gap, which aids us in understanding the map of our surroundings, helping us to determine our destination—getting (and keeping) a good job. However, the way we choose to get there can, and will, vary greatly; that is to be expected.

Are there any disadvantages of pursuing Design Thinking and the Growth Opportunity items or the Growth Opportunity principles to combat the Creative Achievement Gap? I would argue that there are no drawbacks or disadvantages to implementation. And while I understand that it won’t be easy, I do think that clearly defining the Growth Opportunity items and creating alignment between stakeholders with the Growth Opportunity principles, are big first steps in combating the Creative Achievement Gap.
Kim states, “To reverse decline in creative thinking, the United States should reclaim opportunities for its students and teachers to think flexibly, critically, and creatively” (294). The Growth Opportunity items and principles offer just such opportunities.

So, Let’s be boldly, unapologetically brave. Let’s take action, and fearlessly experiment. Let’s collaborate and create alliances. Let’s be optimistic, cultivate curiosity, and continually seek knowledge. Let’s close the Creative Achievement Gap, one Growth Opportunity at a time.
References


Definitions

Critical Thinking
The mental process of conceptualizing, applying, analyzing, synthesizing, and evaluating information to reach an answer or conclusion.

Problem Solving
The concluding part of a larger process that also includes problem finding and problem shaping or defining.

Collaboration Between Ages and Grades
The action of working with someone in another grade or of a different age to produce or create something.

Leadership by Influence
The kind of leadership where reasoning and persuasion are utilized instead of authoritative.

Agility
The ability to think and understand quickly.

Adaptability
The ability to adjust to new conditions.

Initiative
The power or opportunity to act or take charge before others do.

Entrepreneurialism
Characterized by the taking of some sort of risk in the hope of benefit; enterprising.

Effective Oral Communication

Effective Written Communication

How to Access Information
How one acquires information.

How to analyze Information
How one makes sense of the information they’ve acquired.

Curiosity
Having a strong desire to know or learn something.

Imagination
Having the ability of the mind to be creative or resourceful.
### K-12 Education Assessment

1. *Which of the following are important to teach in grades 5-8?*

   *Scroll down for definitions if needed.*

   *Mark only one oval per row.*

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<thead>
<tr>
<th></th>
<th>Most important</th>
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<tbody>
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<td>Collaboration Between Ages and Grades</td>
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<td>Leading by Influence</td>
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2. Which of the following are important to teach in grades K-4?

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*Mark only one oval per row.*

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</table>
3. **Which of the following are important to teach in grades 9-12?**

*Scroll down for definitions if needed*

*Mark only one oval per row.*

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<th>Not very important</th>
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<td>Initiative</td>
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<td>Imagination</td>
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</table>
4. Please respond with the most accurate answer, in your opinion.  
Mark only one oval per row.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Agree</th>
<th>Not sure</th>
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</thead>
<tbody>
<tr>
<td>Everyone has creative potential</td>
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<td>Innovation is the child of imagination</td>
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<td>We can all learn to be more creative</td>
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<td>Creativity thrives on diversity</td>
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<td>Creativity loves collaboration</td>
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<td>Creativity takes time</td>
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<td>Innovation can be taught</td>
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<td>Creativity is only valuable in art and design</td>
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<tr>
<td>Creativity just happens (You can't predict or create it)</td>
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<td>Only certain people have the potential for innovation</td>
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<tr>
<td>Creativity cannot be taught</td>
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<td>Creativity can be improved</td>
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<tr>
<td>Creative cultures are rigid</td>
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<td>Creative people don’t ask questions</td>
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<td>Innovation thrives on diversity</td>
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<td>Creative cultures need creative spaces</td>
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<td>Creativity is highest when working alone</td>
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<td>Innovation does not take much time</td>
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<td>Innovation is only valuable in art and design</td>
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<td>Only certain people have creative potential</td>
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<tr>
<td>Innovation just happens (You can't predict or create it)</td>
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</tbody>
</table>
5. Define CREATIVITY in your own words.

________________________________________________________________________
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________________________________________________________________________
________________________________________________________________________

6. Do you think teaching creativity is important in grades K-5?  
_Mark only one oval._

☐ Yes
☐ No
☐ Other:  ____________________________________________________________

7. Please Explain.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

8. Do you think teaching creativity is important in grades 6-8?  
_Mark only one oval._

☐ Yes
☐ No
☐ Other:  ____________________________________________________________

9. Please Explain.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
10. Do you think teaching creativity is important in grades 9-12? 
   *Mark only one oval.*
   - [ ] Yes
   - [ ] No
   - [ ] Other: __________________________________________

11. Please Explain.

   ________________________________________________________
   ________________________________________________________
   ________________________________________________________
   ________________________________________________________

12. Define INNOVATION in your own words.

   ________________________________________________________
   ________________________________________________________
   ________________________________________________________
   ________________________________________________________

13. Do you think teaching innovation is important in grades K-5? 
   *Mark only one oval.*
   - [ ] Yes
   - [ ] No
   - [ ] Other: __________________________________________

14. Please Explain.

   ________________________________________________________
   ________________________________________________________
   ________________________________________________________
   ________________________________________________________

94
15. Do you think teaching innovation is important in grades 6-8?  
*Mark only one oval.*

- Yes
- No
- Other: ____________________________________________________________

16. Please Explain.

____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________

17. Do you think teaching innovation is important in grades 9-12?  
*Mark only one oval.*

- Yes
- No
- Other: ____________________________________________________________

18. Please Explain.

____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
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19. If I have given you a personal code, please enter that here.  
If you do not have a code, please leave this blank.

____________________________________________________________________

20. ANY FEEDBACK ABOUT THIS SURVEY IS WELCOME! THANKS!
Appendix B: Survey Results from Preliminary Study with Adult Participants
<table>
<thead>
<tr>
<th>Critical Thinking</th>
<th>Problem Solving</th>
<th>Collaboration Between Ages and Grades</th>
<th>Leading by Influence</th>
<th>Agility</th>
<th>Adaptability</th>
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<td>Creative cultures are rigid</td>
<td>Creative people don’t ask questions</td>
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<td>Creative cultures need creative spaces</td>
<td>Creativity is highest when working alone</td>
<td>Innovation does not take much time</td>
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<tr>
<td>Strongly Agree</td>
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<td>Agree</td>
<td>Agree</td>
<td>Disagree</td>
<td>Disagree</td>
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<tr>
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<td>Strongly Disagree</td>
<td>Not sure</td>
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<td>Disagree</td>
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<tr>
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<td>Disagree</td>
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<tr>
<td>Strongly Disagree</td>
<td>Strongly Disagree</td>
<td>Agree</td>
<td>Strongly Agree</td>
<td>Disagree</td>
<td>Strongly Disagree</td>
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<tr>
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<td>Agree</td>
<td>Not sure</td>
<td>Strongly Agree</td>
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<td>Disagree</td>
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<tr>
<td>Disagree</td>
<td>Strongly Disagree</td>
<td>Agree</td>
<td>Disagree</td>
<td>Disagree</td>
<td>Strongly Disagree</td>
</tr>
<tr>
<td>Not sure</td>
<td>Not sure</td>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Not sure</td>
<td>Not sure</td>
</tr>
<tr>
<td>Please respond with the most accurate answer, in your opinion. [Innovation is only valuable in art and design]</td>
<td>Please respond with the most accurate answer, in your opinion. [Only certain people have creative potential]</td>
<td>Please respond with the most accurate answer, in your opinion. [Innovation just happens (You can't predict or create it)]</td>
<td>Define CREATIVITY in your own words.</td>
<td>Do you think teaching students to be creative is important in grades K-4?</td>
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<tr>
<td>Strongly Agree</td>
<td>Strongly Agree</td>
<td>Disagree</td>
<td>Making new connections between things</td>
<td>Yes</td>
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</tr>
<tr>
<td>Disagree</td>
<td>Disagree</td>
<td>Not sure</td>
<td>Being able to make something out of nothing</td>
<td>Not sure it can be taught</td>
<td></td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Creativity is making something of your own. It is &quot;creating&quot; something that you are proud of and believe in. Creativity does not lead itself to strictly the arts - creativity can be seen across in all aspects of life.</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Disagree</td>
<td>Disagree</td>
<td>Disagree</td>
<td>Creativity is being able to come up with new ideas that don't necessarily fit the mold for how things are typically done. Creativity is risk, willingness to try again if you don't succeed, and it requires a certain amount of fearlessness.</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Disagree</td>
<td>Creativity is making connections between concepts that had not be prevalently connected before.</td>
<td>see comment</td>
<td></td>
</tr>
<tr>
<td>Not sure</td>
<td>Strongly Disagree</td>
<td>Strongly Disagree</td>
<td>The ability to complete a task or project by combining what is inside of you with outside influences.</td>
<td>Yes</td>
<td></td>
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<td>Strongly Disagree</td>
<td>Agree</td>
<td>Disagree</td>
<td>Development of something unique, original, or different.</td>
<td>Yes</td>
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<tr>
<td>Not sure</td>
<td>Not sure</td>
<td>Strongly Disagree</td>
<td>The ability to use original thoughts or ideas to do new work.</td>
<td>Yes</td>
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<td>Please Explain.</td>
<td>Do you think teaching students to be creative is important in grades 5-8?</td>
<td>Please Explain.</td>
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<td>I think creative kids/adults are happier and more self sufficient.</td>
<td>Yes</td>
<td>Same as above</td>
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<td>I think you can create an environment for creativity to happen but I am not sure it can be taught out right</td>
<td>Not sure it can be taught</td>
<td>Please see answer above</td>
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<td>I think in order to help students become successful in life you need to allow them to be themselves at all ages. You need to provide an environment that fosters and promotes learning, creativity, and independence.</td>
<td>Yes</td>
<td>I think in order to help students become successful in life you need to allow them to be themselves at all ages. You need to provide an environment that fosters and promotes learning, creativity, and independence</td>
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<td>Little kids are amazing, blank slates. I think some of the greatest creativity can be seen from kids this age because they haven’t been shaped by the system yet to fear getting bad grades or worry about being made fun of by their peers. They have the fearlessness that I think creativity requires. Society hasn’t squashed kids in this age group quite yet. Based on what I’ve seen with my own child, I don’t think you really need to teach kids this age to be creative; I think you just have to support and encourage the creativity they already have.</td>
<td>Yes</td>
<td>I think that this age group is where we start to see more worry about standardized tests, getting good grades, doing what it takes to get the A. If kids can’t do those things easily, this is also the age where we see them give up and start to hate school. Creativity falls to the wayside in exchange for getting good scores on the OATs. I believe we could keep more kids from falling through the cracks (so to speak) by encouraging creative thought while teaching the core curriculum.</td>
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<td>I think giving students the space and culture to be creative is important.</td>
<td>see comment</td>
<td>I think giving students the space and culture to be creative is important.</td>
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<td>I know that some people feel that they are not creative - me included - so if it is encouraged and taught more then we can use it in all aspects of life as we age.</td>
<td>Yes</td>
<td>Same as above and building on it as kids age/grow.</td>
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<td>At this age, children are more imaginative. It is a good time to work with them on creativity because they have fewer mental obstacles.</td>
<td>Yes</td>
<td>At this age, they are learning to be more disciplined and follow the rules. Providing them with opportunities to be creative keeps their minds more elastic, allowing them to have unique thoughts. This can help them in all subjects in school, as well as at home and socially.</td>
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<td>Allowing students the freedom to create makes learning fun, and I strongly believe that the goal of K-4 education is to make kids love learning!</td>
<td>Yes</td>
<td>At this age, we want to encourage kids to enjoy learning and to love school, and not to feel that school “owns” knowledge, but that knowledge comes from lots of different places. At a time when kids are struggling to figure out who they are as people, teaching them creativity is super essential I think!</td>
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<td>Do you think teaching students to be creative is important in grades 9-12?</td>
<td>Please Explain.</td>
<td>Define INNOVATION in your own words.</td>
<td>Do you think teaching students to be innovative is important in grades K-5?</td>
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<td>Yes</td>
<td>Success isn't just about memorizing information, it's about solving problems and figuring things out.</td>
<td>Putting a new spin on an process/product that improves it.</td>
<td>Yes</td>
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<tr>
<td>Not sure it can be taught</td>
<td>Please see answer above</td>
<td>being able to take an existing situation and improving on it</td>
<td>kind of</td>
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<tr>
<td>Yes</td>
<td>I think in order to help students become successful in life you need to allow them to be themselves at all ages. You need to provide an environment that fosters and promotes learning, creativity, and independence.</td>
<td>Innovation is being able to create something new.</td>
<td>Yes</td>
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<td>Yes</td>
<td>This is the age I teach. By now, they are so focused on getting the right GPA, scoring the right score on their ACTs, passing the OGTs, and applying to colleges that there simply is no time for creativity. Students don't see the value in it any more, and yet, if we don't teach them that not everything can be black and white, and that they can offer the world so much more than just being &quot;smart&quot; on paper, we'll keep pumping out these kids who know how to pass tests but who can't come up with an idea on their own. Creativity is important in every field, but they can't see that. Our system, as it is, has sucked all of the fun, creativity, and innovation out of learning.</td>
<td>Innovation is putting a new idea to the test. You may succeed, you may fail, but there is something to be learned from the process.</td>
<td>Yes</td>
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<td>see comment</td>
<td>I think giving student the space and culture to be creative is important.</td>
<td>Same as creativity, but adding in a sensitivity for culture, precedent, and market.</td>
<td>see below</td>
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<td>Yes</td>
<td>ditto above</td>
<td>Looking at things in a new and unique way as well as creating new ways to do things/accomplish tasks.</td>
<td>Yes</td>
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<td>Yes</td>
<td>Creativity can help this age group push the limits of their education, explore new ideas, and learn more. This type of mindset will be invaluable as they head off to career or college.</td>
<td>A process that results in an idea, product, or process that changes the way we live or interact with our environment.</td>
<td>Yes</td>
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<td>Yes</td>
<td>Creativity is an important trait for any future careers - both those that currently exist, and those that will some day exist!</td>
<td>Introducing or applying new processes or devices or ideas.</td>
<td>Yes</td>
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<td>Please Explain.</td>
<td>Do you think teaching students to be innovative is important in grades 6-8?</td>
<td>Please Explain.</td>
<td>Do you think teaching students to be innovative is important in grades 9-12?</td>
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<td>It's a fun and rewarding way to learn</td>
<td>Yes</td>
<td>Builds self esteem and confidence</td>
<td>Yes</td>
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<td>I'm not really sure if this age range would fully understand that it is being taught is actual innovation</td>
<td>Yes</td>
<td>By this age, the kids would have a better understanding of critical thinking would be able to see potential issues within a situation</td>
<td>Yes</td>
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<td>Students need experiences that allow them to be individuals. They need to be able to create, discover and learn.</td>
<td>Yes</td>
<td>Students need experiences that allow them to be individuals. They need to be able to create, discover and learn.</td>
<td>Yes</td>
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<td>Again, this is the perfect age to teach qualities like innovation. Kids this age love to explore, and they aren't afraid to throw crazy ideas out there. They bounce back when their ideas fail, and they are so excited when their ideas succeed. This is the age at which we should really be fostering a love and respect for innovation. If we can engrain it into their little brains at this age, they might continue to be innovative as they get older.</td>
<td>Yes</td>
<td>I think that we might get more buy in from kids who are indifferent to school if we taught them to be innovative and placed value on that process instead of putting a grade on a final project. Grades have a place, as do many different kids of assessments, but I do wish we allowed kids this age to explore their ideas without worry about what it's worth in terms of a letter or number at the top of a piece of paper.</td>
<td>Yes</td>
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<td>Allow for creativity and invocation will follow.</td>
<td>see below</td>
<td>Allow for creativity and invocation will follow.</td>
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<td>Again, like creativity, innovation is something that can help kids learn when young as well as throughout their lifetime.</td>
<td>Yes</td>
<td>ditto</td>
<td>Yes</td>
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<td>Teaching the process is important at this age, because it allows them to explore, but the results may be less grounded in reality than older students since they are less analytical at this age.</td>
<td>Yes</td>
<td>This is very important for problem solving at this age. As these students are maturing, they are better able to use the innovation process.</td>
<td>Yes</td>
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<td>See creativity! :)</td>
<td>Yes</td>
<td>See creativity!</td>
<td>Yes</td>
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<td>Please Explain.</td>
<td>Whose responsibility is it to teach students to be innovative?</td>
<td>Whose responsibility is it to teach students to be creative?</td>
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<td><strong>Same as above</strong></td>
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<td>By this age range, kids should be able to look at a situation, identify possible areas of improvement and create practical ways to make those improvements.</td>
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<td>Students need experiences that allow them to be individuals. They need to be able to create, discover and learn.</td>
<td>Parents and teachers need to work together</td>
<td>Students learn best when everyone is on the same page - it is up the parents and teachers to work together.</td>
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<td>This might be the most important age to teach innovation. Much like creativity, a lot of kids have lost all sense of innovation by now. They are scared to take the unbeaten path. Our system teaches them that tests matter, but the workforce is full of jobs that require innovation. If we don't teach them how to be innovative without fear, but we do teach them to score well on standardized tests (how well can most certainly be argued, but I digress), then we are sending a severely limited population out into the workforce. If I'm dying on the operating table, even though everything went by the book, I would hope my surgeon would be innovative enough to try to do something to save me. Sometimes just knowing the &quot;right&quot; answer isn't enough.</td>
<td>All important figures equally</td>
<td>All key figures with equal importance</td>
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<td>Allow for creativity and invocation will follow.</td>
<td>Parents and teachers equally.</td>
<td>Both Parents and teachers equally</td>
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<td>ditto</td>
<td>Primarily parents, but teachers help</td>
<td>Primarily parents, but teachers help</td>
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<td>Having the ability to develop ideas and analyze them is a tremendously valuable skill as they move into college or a career.</td>
<td>Primarily teachers, but parents help</td>
<td>Primarily parents, but teachers help</td>
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<td>See creativity! (Sorry! I'm running out of time and have to get to my class!!!!)</td>
<td>Primarily parents, but teachers help</td>
<td>Primarily parents, but teachers help</td>
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<td>Important Skills</td>
<td>Initiative</td>
<td>Entrepreneurialism</td>
<td>Effective Oral Communication</td>
<td>Effective Written Communication</td>
<td>How to Access Information</td>
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<td>Which of the following are important to teach in grades K-4? [Curiosity]</td>
<td>Which of the following are important to teach in grades K-4? [Imagination]</td>
<td>Which of the following are important to teach in grades 5-8? [Critical Thinking]</td>
<td>Which of the following are important to teach in grades 5-8? [Problem Solving]</td>
<td>Which of the following are important to teach in grades 5-8? [Collaboration Between Ages and Grades]</td>
<td>Which of the following are important to teach in grades 5-8? [Leading by Influence]</td>
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<tr>
<th>Which of the following are important to teach in grades 5-8? [Agility]</th>
<th>Which of the following are important to teach in grades 5-8? [Adaptability]</th>
<th>Which of the following are important to teach in grades 5-8? [Initiative]</th>
<th>Which of the following are important to teach in grades 5-8? [Entrepreneurialism]</th>
<th>Which of the following are important to teach in grades 5-8? [Effective Oral Communication]</th>
<th>Which of the following are important to teach in grades 5-8? [Effective Written Communication]</th>
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<td>Which of the following are important to teach in grades 5-8? [How to Access Information]</td>
<td>Which of the following are important to teach in grades 5-8? [How to Analyze Information]</td>
<td>Which of the following are important to teach in grades 5-8? [Curiosity]</td>
<td>Which of the following are important to teach in grades 5-8? [Imagination]</td>
<td>Which of the following are important to teach in grades 9-12? [Critical Thinking]</td>
<td>Which of the following are important to teach in grades 9-12? [Problem Solving]</td>
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Which of the following are important to teach in grades 9-12?

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<th></th>
<th>Collaboration Between Ages and Grades</th>
<th>Leading by Influence</th>
<th>Agility</th>
<th>Adaptability</th>
<th>Initiative</th>
<th>Entrepreneurialism</th>
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Appendix C: Interview Transcripts from Preliminary Study with Adult Participants
Teacher #1

M: I don’t know how much of this I want to explain to you, but I was explaining this to the kids in school, do they love it or do they hate it. I guess for you, you could do the same thing, but based on being a teacher.

A: Okay. So inside a classroom for school?

M: Well, some of them aren’t classroom related. If you aren’t sure what they represent, that’s fine. This is a scale, so if you really like or not.

A: Can I do this from a kindergarten teacher’s perspective?

M: Yes.

A: Actually I teach kindergarten intervention. So I teach struggling readers.

A: These are more on one side or the other, then are not really a progression. Do you want a progression?

M: No, that’s fine. Maybe pick you favorites.

A: The paint brushes, the music, and the technology.

M: There is a lot of technology, as [your son] told me.

A: I don’t necessarily like what they are doing. I like the teacher meeting with the kids in a small group. Rather than sitting at desks. That makes me anxious.

M: Yeah.

A: The kids being able to explore with different things. That’s good with me.

M: So how do you think that this differs from someone that teaches just kindergarten. Does the type of class you teach change your

A: It would not change as to what I would do because when I taught a regular classrooms which was last year I would have the same options. I think a lot depends on your knowledge and understanding of the future. And knowing that really this is the tool and embrace it because that is the way the kids learn right now and a lot of them are more savvy with technology than I am. They have to be and have the freedom to explore different resources whether it’s music, art, or reading.

M: To help them especially if they are struggling reading...

A: Yeah. And they have to want to come to school. If they have all their stuff at home, and they have all these outs at home, and they come to school and they are forced to sit at a desk...

M: And not...

A: They are not going to want to come.

M: So you took the survey and you know that I am interested in creativity and innovation. So when you hear the word creativity, what is the first thing that you think of?

A: From my perspective I think being a creative problem solver when it comes to reading. Because that’s the way I look at things. How are you creative and how are you using books to help you understand and help you move forward. As a teacher how am
I using the resources that I have teach the kids that I have. How am I being creative with what I have. From a kid’s aspect how are they able to express their creativity whether its through writing stories or choosing their own genre of what they want to read or if its giving them time to do whatever they want.

M: So do you think about that when you are planning lessons?

A: Oh yeah.

M: You are trying to be creative and allow them to also express their creativity in a way.

A: Yeah.

M: Interesting. Do you think that schools should focus on teaching creativity? I don’t know if that’s an overall thing, or if its with teachers.

A: I think that with the way that kids learn best, teachers have to be creative. I think they have to be able to change and adapt their lessons and their teaching to meet the needs of the kids. And if they are not using that then they are not doing the kids justice. Does that make sense?

M: Yeah. Definitely makes sense.

A: I am not thinking of being creative as an art sense. It is more of a crib of what I do.

M: So you think that creativity spans beyond art.

A: Yeah.

M: Its other ways to do things.

A: I get the heebee geebees when I walk into some of the classrooms out there because there are still multiple teachers out there that have the kids sitting at desks doing worksheets all day. And it just breaks my heart.

M: Well, I am not a teacher, I mean I teach some college classes now, which aren’t the same, but I feel like you can ask someone who doesn’t teach who went to school and there are certain classes you enjoyed more than others. So there had to be something about them.

A: Yeah. That made you remember them and that they were meaningful.

M: Okay. We are going to keep talking, but I have some more cards here that I want you keep sorting. I don’t have any explanations for them. If you think they are creative, innovative, both, or neither. This box is for don’t know.

A: Okay.

CARD EXERCISE

M: I’ll start discussion the ideas for my thesis. Some of the questions I was asking were to ask you differentiate between creativity and innovation. Now I don’t remember what your exactly thing was, but was it really clear to you the difference between innovation and creativity?

A: I don’t think it was. I think they are kind of hand-in-hand. Not one in the same, I think there is a distinct definition. But when I think of those two words I basically think they kind of go together.
M: My thesis is going to be that. But in different context. When we talk about education we talk about creativity. When we talk about business we talk about innovation.

A: Okay

M: And I guess what I am interested in finding out, and there are lots of books that are present day and lots from the past, that are talking about teaching for business. Or teaching for what you want to do when you are out of school. Talking about creativity and if businesses want to hire creative people.

A: Okay.

M: If that’s what you hear the buzzwords are. How is K-12 education doing that right now? DO you think we are teaching kids the skills that these businesses want?

A: Well the big push, especially in Ohio, is they have adopted the common core standards. And one of the key words is college and career readiness. So, there is like a whole definition of it. So they are trying to teach children how to become college and career ready. So if they choose the college path or career and to give them different resources to be successful. There’s technology incorporated now in common core and language arts, math and there is a built in standard. Problem solving is huge especially. Being able to explain yourself is huge.

M: Yeah. And on the survey I gave you. Did that make sense? Like is problem solving good to teach?

A: I felt like I was taking one of those questionnaires where they try to get the same answer over and over, because it felt like I was saying the same thing.

M: Yeah, I was trying to ask in different ways to make sure I wasn’t just getting “yeah creativity is good.” The funny thing is that none of those things came from a common core.

A: Oh really?

M: Yeah, those are all from different books I have read, like from Sir Ken Robinson, who does some TED Talks and writes about education. Sort of like what’s wrong with education today. And some other writers who have those ideas. I haven’t read about common core yet. Have you heard of magazine called Rethinking Education. The first issue is talking about common core.

A: To me there’s pros and cons. I feel like education is going so into testing that to me its so hard to love it anymore and yet I love my job, I just don’t love the direction it’s heading. I think you have to be accountable, there’s got to be other ways. And so I feel like kids are just getting so much pressure at such a young age. Like the kindergarten standards are the old first grade standards. So everything is getting bumped down. But the kids are just not ready, developmentally, you have to just give them a chance to be just kids and I feel like that is just being taken away and all this pressure is being put on them.

M: So do you think that might be a problem for some of the teachers that are teaching? Maybe the old school teachers? You are teaching to the tests, but also be creative with your lesson plans. From my one class that I teach I know how much time you can spend planning something.

A: What I remember growing up you were spelling words every week. And you all had the same reader you were reading out of and you would follow along with your sentence, and you did all of these things and that was just the way it was. That was the way that everybody did it. And now, maybe they knew it back then and they just didn’t care, but I mean some kids just cant do that, and they cant learn that way. So you have to be able to provide an experience that will allow them to learn the way that they will lean best. And so I think that a lot of people that are old school, they just cant... We have “bring your own device to
school” and they don’t understand why, but there are kids who are more proficient at reading on an iPad because that is what they are used to. They don’t even know what a book is. Its situational. And your philosophy and your beliefs and how willing you are to change if you are an educator

M: Do you think it is extra hard to be creative or infuse creativity because you do have to hit certain standards?

A: I think its hard at first because you have to figure out how it is going to work for you. I just found this new website called Plan-book. And I am just starting to try and use it because if I can access it at home, how will that be different... All my standards I can link directly on there so I am just trying different things, and the kids can see me using different technology as well. So you are trying to incorporate it into everything you do, and its hard to figure out.
I think its challenging but you have to be willing to accept the challenge.

M: Do you think some teachers don’t know that coming in? And do you think coming in teaching is different than what you thought it would be?

A: Yes. And I think that the way that I look at new teachers now, and I am in year 12 so I feel like an old teacher now, I think you have to be willing to know that education is always changing. If I had to do it again I don’t know that I would go into education. I love what I do and I’d work with kids in some capacity, but its hard. It really is. Its a lot of paperwork and a lot of numbers you don’t always have the time during the day.

M: Yeah, you have a family and you can’t put 4 hours in at night every night. Do you feel like you wish you could do more but you don’t have the time?

A: Oh yeah. And I probably could. I probably could make the time but I have priorities. Your family has to come first. I think I could be doing more.

M: Do you think the teachers that aren’t being as creative think about that kind of thing?

A: I think some people are probably scared. Its a learning curve and until you are ready to embrace that or to take that learning on, its probably a very scary thing.

M: Is it sort of like business where people are like... just give me my paycheck....

A: Yes totally. And its sad because you’re influencing kids forever and if you are not willing to change yourself. Thats the one thing about teaching if a child is not getting it, its not because what they are not understanding it because of what you’re doing. So you have to change what you are doing 12 times so they can understand it. Its not their problem its yours.

M: Thats interesting. What I am interested in is teaching kids skills so they can get jobs. Now I know there are a lot of people that argue that that is now what education is for. But I would argue that most people go to school and college so they can get a job.

A: Right. They want to have a career.

M: So do you agree? Do you think that is a good goal to have? To prepare students for ...

A: The future? Umm. Yeah, I think you should . You have to prepare the kids of today to be the leaders of tomorrow. So if they are going to be a Starbucks person, great. If they are going to make your coffee that’s good, but I could be teaching the next president. So I have to be helping them get the skills they need to be successful.

M: Do you think there are any downfalls if we teach for business or for jobs?

A: I think you have to look at your clientele, just like in business you have a target audience. You could look at kids in kindergarten,
and in my opinion, you hope that everyone is going to go to college but you can look at them sometimes and say they are going to struggle for a very long time. If things are hard for them now imagine them in 15 years. So you want to give them the tools they need to choose a path at McDonalds or at OSU.

M: That’s all very interesting. So you said you could look at these kids and know it might be a struggle for them. How much influence do you think is from their family?

A: Huge. I think nurture vs nature. Let me go back to your environment you’re growing up in. I think that if things are valued at home those things will be valued at school. So I think that home-school connection is huge. I have some kids who don’t speak any English and parents are really really really trying at home but the parents don’t speak any English, but they tell them they still have to try. The child is still struggling but they understand that they still have to try. Whereas I have English speaking kids at school who with their dads on weekends all they do is play video games. They don’t want to try at school because they don’t see how that’s going to be impactful for the future. They don’t see how this is going to help them with what they do everyday. SO I think it really depends on the precedence and importance you put on things at home as to how things are in school.

M: That’s interesting. That’s one of my other things. There are all of these rifts in schools and the poorest communities have the worst schools. But I don’t think that is indicative of the school itself. As a community if your parents don’t put values on things, they aren’t going to come to school and value it. If they don’t respect the people at home they aren’t going to respect other people.

A: I agree.

M: That’s when I feel like this education thing is so wide and people say we need to reform education. Maybe its not this whole thing, because that seems so big. What do you think about each school and each neighborhood has their own way of doing something. And what works for this district doesn’t always work for this other district. And there are the nuances where everyone is under the same curriculum but the way they teach is sort of different. Do you find that to be true?

A: I think that in Dublin where I teach, they try have across the curriculum they have whats called, for reading, writing, math or literacy and math, a workshop model. So the teachers are supposed to approach their teaching as a workshop model which emphasizes a lesson. The teachers provide a new lesson to the kids and it might be reading a book or doing a lecture. It is some sort of teachable moment for the kids. And then the kids have a practice time, where the teachers pull them in small groups or working with them one-on-one and assessing the student. Then they have an independent practice time and they come back together afterwards and they share all the students knowledge or something that happened with a conference. A student might get a chance to share their “ah-ha” moment when they were trying something independently. So that’s supposed to be how you teach. That independent practice time could be a game in math or could be silent reading and reading workshop. It might be them writing a story about something they did over the weekend in writing. And that final piece is how they bring it all back together. So in theory thats the way it should look. And in Dublin what their umbrella is for teaching. Does everyone do that understand it? Maybe not. But that’s how they are geared to teaching.

M: what do you think of that?

A: I think it works. I think allowing that small group independent time is huge for kids. I don’t agree with kids sitting in desks. I don’t have desks in my classroom. I have tables and floor-space. I think that kids need that time to practice. They don’t get that practice time at home with a teacher there to help scaffold their learning.

M: Yeah exactly. This all sort of started as I was looking at Montessori methods. I have never heard of anyone say “I hate that Montessori stuff” so I thought how interesting that all these people with such great experience at this place where they play and do hands on, and not even technology. Kids seems to love it and thrive in that kind of environment.
A: Kids just don’t have time to play anymore. Your in school for two and half hours and you’re expected, especially for kinder-
garten, to fit all this curriculum in, reading, writing, math, science, social studies, and there is no time to play and its sad. Your
playing is letters, numbers, and words.

M: I heard some schools are getting rid of recess.

A: yeah. They need to be able to run around.

M: From everything that I have read, and from talking to you, everyone is talking about all the right things. The teachers are saying
that certain standards, no body likes teaching to the tests. The parents don’t like it. The teachers don’t like it. But it’s coming
down from what? Government standards? State Standards? So who are these State people that are creating the curriculum?
And how are we still just plugging along?

A: It’s interesting. I don’t know. Its one of those things that you just kind of have to do. Things get passed into law and districts
adopt them. There is a new model in Ohio, its the teacher evaluation system, and 50% of your score is based on student
growth. It’s unfortunate, but I see it happening in the school that I am at, that people are changing scores. They are not
necessarily accepting the kids they should be at the beginning of the year because they want them to have those low scores at
the beginning of the year so that growth is there at the end of the year.

M: So you are padding the system.

A: Yeah, but how are you helping the kids when you are not showing an accurate reflection of what they have actually gained?

M: Do you think as a teacher, does that scare you? Do you feel like being based on a students growth is scary?

A: It’s very scary. That no child left behind, there is no one-size-that-fits-all. Just like there’s not one learning style that’s best. Its
hard. I think you need to look at student growth, but you cant look at it in one year. Sometimes in Kindergarten especially, that
light bulb doesn’t turn on right away. And it might take until first grade for things to really click about being in school and to
really understand and to make that growth. If you want to look at students success you have to look at it over a longer span
than 180 days.

M: Yeah.

A: And some kids come to school, right off the boat. We have kids that come in in fourth grade with absolutely zero English. And
they are expected to make the gains when they are still learning a new culture, a new language, new experiences, and how to
survive.

M: I just assumed you would try to teach your children English before you got them in a school. How terrifying would that be?

A: And there are things in place where if you are fresh you have 3 years there is certain criteria where they want to see growth.
The expectation isn’t quite the same but its still hard.

M: How do you feel about being scored against your children’s learning. But that goes back to parents. So if the parents aren’t
helping, they are basically affecting your score or rating. You only have them so many hours a day.

A: You want to build that bridge with the parents too. Especially early on. Constant communication. This is a team. We have to
make sure we are supporting...

M: Do you feel like there are some parents that are better? And some that aren’t?

A: And there are some parents that think that when they are at school, they learn at school, and when they are at home its “our
time” to be at home. So its hard for them to differentiate. And there are some parents that jump on board whole-heartily and
know this is importance. And some parents just don’t have the time, like some single parent families who work 3 jobs just to
make ends-meet and they don’t have the extra time. They have to worry about making sure they are bathed, fed, and sleeping.

There is this little girl in 1st grade and it just breaks my heart. Her dad just got deported. So they found out that he was illegal. So he’s back in Mexico. Mom works the midnight shift, or whatever, at Tim Horton’s. So she has to wake her kids up at 2 in the morning. There are 3 kids. To take them to a babysitter, so they can then get on the bus, because she has to be at work at like 4 in the morning to make sure everything is fresh. So they saw their dad being deported. They speak limited English. Mom is doing what she can. She doesn’t have any family here, she has friends. And they are expected to be successful. And they need to be able to survive. And this is Dublin so imagine some of the kids in some other districts...

M: My assumption is since it was Dublin the grass is greener. But the problems span districts no matter what district you’re in.

A: I always told [husband] that if we still lived in Clintonville, that I would still send my kids to Columbus public. He said “Really?” I was like, we would be involved. And yes they would see things that we wouldn’t want them to see at a young age. But if we valued what they are doing at school and if we make that connection, then the ought to be find. But we live in Upper Arlington.

**Parent #1**

M: These are things to do with school. This is “I like it” or “I hate it” or “an in between.” If you’re not sure what it is or it doesn’t make sense, you can just stick it in this box.

E: Okay.

M: For you its “like it” or “hate it” or for your child what you think is “most important” of “least important.”

J: Not the super bowl.

E: Is it important for you to lose the Superbowl? Embarrassingly.

J: So the super bowl.

M: It’s Peyton Manning though. He’s pretty awesome.

E: He really is.

E: Do you want it in a range or like one pile here and one pile there?

M: Just in a range is fine. Yes, No, and ehhhh.

E: I’m just going to group all those sports together. You can see some of my personal bias coming in here. <whispers: I like science.

M: I was telling [your son] I’m doing a range K-12, I have some questions that are like “do you dance in school” or “do you play in school?” Those questions are a little different. My first interview was a kindergartner. He liked everything or he didn’t know. ..... 

E: I’m not really sure what that’s doing. Can I ask you?

M: Yeah.

J: I stalled on that one too
E: I’m not sure if it’s like science or just studying.

M: you can either decide what it is or you can just put it in the “I don’t know pile.” Clearly it’s not making a huge mark on you.

E: Right. Okay.

M: Good?

E: I don’t know. Is it not supposed to take this long?

M: Well you have a couple more piles to go. He only had 1.

E: That means you have to talk to me. You didn’t tell me that part. Okay.

M: These little things are probably not going to change.

M: So why do you think you have your sciences and actual subjects more in important.

E: Well, writing skills I think are really important as far as career. One of the things that we see in college now is kids that can’t write for crap. It’s a big big deal for me. And English I put that in the, not necessarily reading and literature, but writing and grammar. Being able to speak properly.

M: Communications.

E: Yes. So that’s important. I do think the sciences are important. Partly because it helps people understand how their bodies work, how they work, and how they interact with the world. But I also think creative play and free drawing and music are also very important. Because they use different part of the brain and actually help you with all these other subject matters. And study skills are important. And I say that because I don’t have them.

M: Yeah.

E: Sports I think are important. I think they teach a lot. They teach people to be healthy. They teach teamwork. They teach you how to win and lose. They teach good work ethic. History I just don’t like. And for us, I think history is very flawed anyway, for what we teach.

M: So your problem with history is the way it’s delivered.

E: Yeah.

M: So the first thanksgiving and then we don’t talk about the second thanksgiving.

E: Or any other. Yeah. And it’s pretty much all centered around war. Everything is either war time or post war.

M: I always thought you tried to cover the entire span of history and I never had a good grasp of any history. Just from what I learned in school. It was always like we were going to learn about this entire thing, in two weeks. It was impossible. Interesting.

Okay

E: Technology I just don’t care about.

M: Do you think it’s not important? You say for math and science are important, but not technology itself?
E: I think it’s more important to know how to think, rather than to know how to use a computer. Because if you can think, then you can use the computer. The computer is a tool. But it’s not necessary to learn.

M: Okay. So I have a couple of piles here. Now you can do the same thing. This is creative. Creative or innovative. Not creative or innovative. It can be like a scale. This is a group of people. So just do them based on whatever you see or however you interrupt it.

<card exercise>

M: Okay. So where do you think the line is here? So this is less creative and this is more creative?

E: Yeah.

M: Now remember these guys, they are going to make another appearance. Do the same thing, creative, innovative, or not creative or innovative.

M: Okay, now this is you. Now place yourself in there.

E: Well I want to be right next to that little boy.

M: Okay, so do you think your line is here? Like more creative

E: Yeah and this is like inching...

M: Are there any of those that you think are more interesting than other?

E: Well this one. The sketches. And these two.

M: Well that one was a lot easier. This is all your interpretation. Alright. So what I am going to have you do is take these groups. Those are the two that you said were creative or innovative. I want you to now sort them between creative, innovative, this is the still “I don’t know” but you probably shouldn’t have any of those.

E: Right.

M: So this one and that one is both. So if you think they are both.

—Shuffling of cards—

E: Not really sure why I picked this one.

M: You can put it back in there if you want.

E: Okay.

M: So I didn’t get a chance to look and see if you had done the survey where you define the difference between creativity and innovation. Being creative and innovative. So do you think the first time you just separated by both then you separated them in this way. What do you see is the difference between

E: The big difference that I see is process. And I would say innovation probably has an end result that is purposeful rather than creativity that can be anything. Either for a user or for your own personal whatever.

M: So the fact that it has some purpose in the end
E: Yes. But I think there is definitely a big overlap between them.

M: Do you think dividing them up was hard?

E: Yeah. I think it’s hard because some of them that were more artsy, like sketches and things. These are just like fun little doodles. So, you know, its not going to have a big purpose. Like this is a technical drawing of a project or product, I don’t know what it is, but it could be something new and different.

M: Gotcha. As a parent of a child in K-12 education, I interviewed a teacher this morning to hear their side. But also you’re in a creative field as well. When you think of creativity in schools do you think that is something they should focus on? And when I say creativity, I mean, not spending extra time in art classes, but weaving creativity into science classes or math classes.

E: I think that would be nice. I don’t know specifically how much that they do right now. I think that any time that you can increase free thinking in any kind of subject matter it is a good thing.

M: So do you think there would be benefits to teaching kids to be more creative? Downfalls?

E: Well. I think the only downfall could be if it gets out of control and they are no longer following the rules or doing things correctly. So finding that balance between keeping them in line with what they are supposed to be doing but also giving them some freedom to invent or create or think ...

M: So if the project is too create this thing and they come up with something completely different you need to still keep...

E: Right. Or if the project is to write a three page paper. Don’t draw a picture and say “I was being creative.” Still write your paper but be creative on it.

M: Gotcha. Do you think that students know how to make that distinction?

E: I think they pretty much just follow the rules. I don’t think they really try to do something different or super creative. Especially in science and math.

M: Unless the teacher comes up with something for them.

E: Right. I don’t think they are making that decision.

M: Do you think that is the teachers responsibility? Or the parents responsibility? To be creative, to teach them? You say they just follow the rules now.

E: I think a lot of that, or at least how easy it is for the student, will come from the parents and what they’ve taught them. Not just in K-12, but before that. Are they being raised and taught to question things and to be curious. If not, its going to be a lot harder for that child, once they get into elementary school to be more of a free thinker. Did that answer the question?

M: Yeah. So lets flip that and say do you think that we should be teaching kids to be innovative in school?

E: Yes. I do. And I think innovation builds on the creativity. And my thinking is that children, younger children, are naturally more creative. And when they go through schools that are giving all these limitations it stops their creativity. So to continue to allow that grow, as they are getting older and more mature they are able to be more analytical and put the two together and become more innovative. Be able to look at these ideas in a more analytical light and make decisions based on those and have new ideas.
M: So the same potential benefits or pitfalls to teaching innovation? Do you think there are any?

E: Well yeah. As far as innovation goes, [my son] is getting ready to go into college. If he could put something really awesome and innovative on any sort of college application, that is going to be a big deal for him. So I think that would really help him stand out, and not just get into a college, but it will help the way he thinks in college. Because in college you are expected to be more independent. So it will kind of bridge that gap.

M: So you teach in a college setting. Do you find that students are prepared for college? Having the right mental frame of mind for college?

E: Not really. Especially my community college students definitely not. They are operating at a much lower level. A lot of them are just doing everything by the book.

E: A lot of them don’t know how to use computers at all. Which is fine, because that is something you can learn but either you teach them certain steps and ways to do things and they don’t deviate from that at all. They follow it by the book. And some of my web design classes, again, are just doing things after learning it. And part of it is because they are not really familiar with it yet. They are learning the technique first and once they have that down, maybe they will be a little more creative with it. But for right now they are not. And my graduate students, I’ve pushed them. Its a class really about creative, so I have to push some of them really really hard to get them there. Some of them just don’t really get it.

M: They don’t want to deviate. Do you find that you have to give them a lot of answers or if they are unsure about something do they try to find the answers themselves?

E: To an extent they do. But there is a pretty wide range of students that I get. Some of them will come to me with very specific questions and want very specific answers. Like what color should I make this. And I wont give them a direct answer, ill say “well what color would be appropriate” or what range of colors, and try to get them to think for themselves. Some students really struggle with that. But others will take it upon themselves to do it. It just really depends on the student.

M: The big discussion is that education has something wrong or education is broken. You’re in a pretty good district, so it might not be quite as obvious in your district, but do you find there are some things that happen in the schools that you’d rather not happen? Do you see this “school is broken” issue and that “kids are learning to test” rather than just learning issue?

E: I actually have that problem when I am teaching. Sometimes they have a test that I have to give them, so I teach them certain things even though I don’t think those things are important. So I definitely see it at the community college level.

M: So as a parent of a student that has to do that, does it bother you?

E: It bothers me that I do it. I try to get away from it as much as possible, but there are just some things that I have to put in. But as far as K-12 goes, I don’t know that I have seen the “broken school” thing. I have seen the teachers there really work hard to try to find things for them to study that they can relate to that would apply to their lives.

M: He was saying that people come in and have a career day, which we never had. I wouldn’t have known I would want to be an engineer because I didn’t know what an engineer did.

E: So they have an artist in the school day, so I could go in and give a presentation on graphic design.

M: Oh, that’s cool. That’s really interesting for most schools perspective. What do you think the difference is between your district and other districts. For example money. What are other factors that go into the schools.
E: Well money is definitely a big deal and part of that comes from the fact that the families are better off. The families themselves are educated. The parents themselves are educated. So they look at education as something that is very important to them. The parents are also very involved in the schools. So bringing the community in, and breaking the gap between the school and the community is a big deal. So like the "artists in the schools" and the "career days," are the parents coming in to do that.

M: Gotcha. Not just people from outside.

E: Right. Well some of them are too, but a lot of them are parents from the district. We have a lot of parent volunteers in the classroom. That's very helpful. But I would say the socio-economic factors are big deal.

**Child Participant #1**

J: Should I say what they are?

M: If you want to say how you are interpreting them that’s fine.

J: This is space. An iPad. Sports. Is this from the super bowl?

M: I don’t think so.

J: What are these pictures, they are so random.

M: Okay. You have it very clear. You like some things and didn’t like some things. Do you want to tell me what your favorite one is over here and why?

J: History, because I like to learn about it in class.

M: Do you like to read things about history outside of class?

J: Mostly in school. The rest of the time I am just doing other random things.

M: You are a sophomore or junior?

J: Sophomore.

M: Have you thought about what you want to do in college?

J: Yeah. I have tons of ideas.

M: Lots of ideas. Do any of them involve history?

J: No, not really.

M: What are some of your ideas?

J: Animation or computer programming.

M: So you are interested in doing something with technology?

J: Yes.
M: That’s good. When you hear the word creativity, what does that mean to you?

J: Coming up with an original idea that no one has ever heard of before.

M: Do you think that animation and technology things you want to do have a creative aspect to them?

J: It involves some creativity. Most of the time you would be given something you have to animate and you can add your own little stuff. But most of the time you just do what they say. Sometimes they will be like “hey we need something you can animate” and you are like alright.

M: But you think there is creativity in both of those, maybe just different levels?

J: Yeah.

M: Interesting. Do you think where you go to school now that have an opportunity to be creative? Are your teachers creative in the way they teach you and allow you to learn subjects?

J: Yeah. They are basically all about that.

M: Do you use technology in your classes?

J: Yeah, I don’t like it though.

M: Why not?

J: Because in math we use iPads to take our notes. I don’t like that. I like having paper where I can write it down and keep it. Part of memorizing or learning something is writing it down because that helps you remember it better. If you do it on the iPad you don’t remember as much because you are not writing it down you are typing it.

M: So you don’t actually use real paper in math class?

J: Yeah. We also take our tests on iPads, which sucks, because I can’t do work there that easily.

M: Is there a way in the program you use to draw or write with it or are you just picking numbers?

J: Just pick numbers.

M: Are you allowed to use paper on the side?

J: Yeah, but they claim it is easier with the iPad. It is kind of hard to use paper when the teacher has all our notes on the iPad because you would have to copy our notes to the paper.

M: Oh. Things have changed since I was in school, we only had paper. Do you sing in school?

J: Yeah, I am in the Grammy singers.

M: Is that part of school?

J: Yeah. It is the varsity choir.

M: Do you still do physical education?
J: For high school we are required to get athletic points. You can get that by taking physical education or you can just take a sport. I did bowling and golf.

M: You said you like baseball but you didn’t say those other sports. Do you like to play baseball or do you like to watch baseball?

J: I like play baseball. I played baseball until seventh grade, or fifth grade. I missed a year and then I wasn’t as good. I didn’t try out because I didn’t realize when the tryouts were. The next year I was going to tryout, but the day I had tryouts I had bowling, so I couldn’t.

M: Gotcha. But you could still play baseball outside of school right?

J: There are no outside baseball teams. The only outside sports team we have is Frisbee golf.

M: Oh disc golf. So you want to do something with animation. So the technology doesn’t really help you in math. Are there other ways that the teachers help you learn that is not involving technology but you think is sort of creative? Do they have you work in groups on projects? For instance, when I was in high school our biology teacher had us learn about bones. But to do that he let us do whatever we wanted to present our ideas. He wanted it to be a creative venture. So my partner and I did a song and someone else did a visual representation. Do your teachers have unique ways of bringing creativity into subjects like history that don’t always seem like they are creative?

J: A couple of weeks ago in Spanish 2 we had to write a children’s book in Spanish. So that was pretty fun.

M: That is pretty cool. Does anything come from that afterwards or was it just for fun?

J: It was for a grade.

M: Do you ever do any projects that are outside? Let’s say you did that book and outside of school someone took it and made it? Have you ever done a project like that in school?

J: No. I know in English some people wrote some things that were published in the newspaper. Or when some kids do good in sports its gets published in the newspaper.

M: Do you think it would be fun if an outside company came into your school to do a project about whatever subject you are in. So say you are in science and this science company comes in and they want your ideas about something. Do you think that would be more interesting than having your teacher just teach you about the science? To see how it relates to what people are doing in the real world?

J: Well that would be better than right now because our teacher just gives us a study guide and we have to search for the answers. He gives us the study guide and teaches us half of and the other half he told us we should Google search it. It’s fine.

M: Do you learn better from the part that he teaches you or the part that you have to go and find?

J: The part that he teaches because normally I don’t Google search it. I have other things to do. Then we go over it and get the answers.

M: So it is better when he just tells you. Why do you think he has you go and search half of it?

J: No idea.

M: No idea. Do you think he just doesn’t want to have teach you the whole thing?
J: I think it is because we have a lot to go over. Our study guides are like 200 questions. So we can only spend a certain amount of time on each subject and there is not enough time in the school year to go over all of it. So he teaches us the important stuff and the rest we just Google search.

M: Interesting. So is there anything else about school that you think is really good?

J: My math teacher last year. It may have been because I knew the stuff, but she would teach and I would finish everything. We would take notes and she would start to teach us and I would flip through the notes and do all of it and the rest of the class she would be teaching and I could just do whatever I want and that was cool and I wouldn’t have any homework because I finished it all in class.

M: And that was because you were better at math? Or you understood it faster than everyone else?

J: I don’t know. Probably because of the teacher, because she was a really good teacher.

M: She didn’t stop you from going ahead in class.

J: No because then I could help people that didn’t understand. I was like a teachers assistant, but not really.

M: Do you think that helps if you have a friend that helps you learn something? Do you think it helps to learn it from someone your own age instead of the teacher?

J: Probably.

M: Did you teach it different way? Or show them a different way or view from how the teacher did it?

J: I took them through the steps of doing it. Technically giving them the answer, but using the steps. We did the quadratic equation and some people didn’t understand that. <gives math example>

M: That’s Algebra?

J: Yes.

M: So it was something where there were just steps and you helped people through the steps?

J: Yeah.

M: Interesting. Do you like school?

J: Yeah.

M: You don’t have to say yeah if you don’t.

J: I mean, it gives me something to do for seven hours. Without that I probably wouldn’t do anything. I would just stay here and play video games.

M: Do you think you could learn just as much without school?

J: No. Definitely not.

M: Because that motivates you and if left to your own devices you would play video games all day long?
J: Pretty much. You could learn from work, but then you wouldn’t learn as much. I am in English and doing essays and I talk about a lot of philosophy.

M: So you like philosophy too?

J: Philosophy is so much fun. You can use it to confuse people.

M: Do you think about doing something with that in school?

J: No. Normally when I speak philosophy it’s to confuse everyone else.

M: You said you really like history. Do you think you can connect that with whatever you go to school for?

J: Yeah. If I wanted to make games, which is what I want to do, if there is a historical game. If I worked for Ubisoft who makes Assassins Creed, they did Assassins Creed III which was in the Revolutionary War and I know a lot about the Revolutionary War. They got a couple of things wrong I could tie that into what I do.

M: That’s really interesting. I actually had a math teacher here who works at a video game company now, because of all of the code and stuff they have to write. I ask because for me one of the confusing things about high school was that you were supposed to pick what you want to do when you get out of school but nobody ever tells you what these things are. Like what does an engineer do?

J: They do that now. Almost every year we have to fill out these papers. They are having people come to our school with different jobs explaining what they do. I like it because it shortens classes.

M: Because you already know what you want to do?

J: What we are supposed to do is fill out this piece of paper while they talk. But no one fills it out. So we listen to them talk and then get rid of the paper.

M: Do you think ...

J: I know a lot about what I want to do. Like a lot.

M: Do you think that other people know what they want to do? Or they just don’t care.

J: Both. People probably have an idea. Last week we had a lawyer and a physician come in. If people don’t want to become a lawyer, they aren’t going to listen to a lawyer talk. Same with the physician.

M: I just wonder how they know they don’t want to be a physician or a lawyer though. Is it just because they think they know what a doctor or lawyer does versus what they actually do?

J: Yeah.

M: I thought I wanted to be a doctor and I followed a doctor for a day and then I knew that wasn’t what I wanted to do. They do a lot of paperwork! Do you think there is anything else about school that will help you get to your goal to animate?

J: We could have other classes that have to do with that sort of thing. We only have two classes, Computer Applications and Multimedia Design. They don’t really have to do with animation. It’s more just Photoshop and coding. I think Photoshop is pretty helpful. I use Photoshop to create custom thumbnails on YouTube. That’s my backup plan.
M: So you seem to want to have an artistic or drawing profession. So your future career has an artistic aspect?

J: I want to learn animation, but something to do with game design. I used to want to just do game design, but I learned that wasn’t just one thing, so I tried to pick one. The one I want to do the least is coding. Because that is really long and annoying and boring. But if I were doing animation then I would get to create particle effects and how the characters in the game move and stuff. I could do concept design. It’s like you come up with an idea and then everyone collaborates their ideas. Then it goes story-boarding. Then it goes to content design, which is art and textures. Then it goes to animation and concept design. They fill in the colors and stuff like that.

M: So one game is made by a lot of people?

J: Probably 20-50 people.

M: Where do you think those people learn? Do you think that they start working in a group outside of college? Do you expect to do that in college? Do you expect to do group work?

J: I’d be fine if it were a group of people I know and like. There was this info-graphic of how to become a game designer and one of the major things was being able to work in groups. I can definitely do that as long as I like the people.

CHILD PARTICIPANT #2

L: I go to Lake. I’m in second grade.

M: You’re in second grade. What do you do in second grade, that you didn’t do in first grade.

L: Times.

M: Times. Okay, so multiplication?

L: Yeah.

M: Really, second grade. Wow. I don’t think I did that in second grade. That’s a pretty big deal then. Do you like doing multiplication?

L: No.

M: What’s your favorite subject?

L: Math or Reading. I can’t choose.

M: Good. Have you been reading for a while?

L: Yeah. Since first grade.

M: That’s good. Do you art class?

L: Yes.

M: Do you like art class?
L: Yes.

M: I am trying to think of other classes you might have because some people don't have the same classes. Do you have gym class?

L: Yes.

M: What do you do in gym class?

L: Last week and the week before we were doing gymnastics.

M: Do you do that once a week?

L: Yeah.

M: Do you get to dance?

L: No.

M: Do you dance outside of school?

L: Yes, but sometimes in gym she puts on music and sometimes I'll sing.

M: Okay. So you sing. Do you have music class too?

L: Yes.

M: Do you sing in music class?

L: Yeah.

M: What else do you do, do you play instruments?

L: Yes.

M: What kind of instruments?

L: We play drums, bells, and I don't know what they are called, but drums or maracas too.

M: They have something that you shake and it makes noise inside?

L: Yeah. And there is a like a drum attached to it.

M: Okay. Does it have little things connected where you do this and it hits it?

L: It's like if you put two paper towels rolls together and one is longer and one is shorter and there is a handle on this side.

M: That sounds cool. Do you like playing music or singing?

L: Yes.

M: Do you like both?
L: Yes.

M: So you sing when you are at home too?

L: Yeah, and in the car because we have the Frozen soundtrack.

M: So you like to sing?

L: Yes.

M: So you like English and math in school, what about those classes do you like? You have one teacher all day right?

L: Yeah, except for gym class we have a different one. What was the question?

M: You said you like English and math, what about English do you like more? You like to read?

L: I like to read easy books, because if I have hard books I can't really read them.

M: Why can't you read them?

L: I can't read chapter books either, and I don't know why, but I am not good at reading. But I like reading.

M: I bet you could read a chapter book if you wanted. That will come. Now what do you like about math? You said that multiplication was hard, but you still like math anyway.

L: Because on Friday we did this in our math book. Our teacher had fake coins and we had to count them out. And she had this green paper to tell you how much money to take. And then you looked in your math book and it was like a grocery store and it had the fruits. And you had to pay so you had to have that much.

M: So you were doing math but you were playing with money like you were at a grocery store. That's really cool. Is there anything else about school that you really like? Like your favorite thing about school?

L: Well one of the things is all of the subjects and what days they are on. We have computer lab, art, gym, and music and library. Library is on Monday, Tuesday is music, Wednesday is computer lab, Thursday is gym, and Friday is art.

M: So those are your special classes? Specials.

L: Yeah.

M: What do you like most about those?

L: Sometimes you get to do writing about your family in art. Sometimes even get to draw pictures, and that's why I like art. I feel like an artist. My friends and I painted Monets and I got to take the picture.

M: That's fun. You're in second grade, but I want to ask you this anyway. Do you know what you want to be when you grown up?

L: Yes. Well, there are a couple of things. There are probably two or three things. A vet or a doctor or work in a grocery store.

M: Why do you want to be a vet?
L: Because I have these two doctor pet games on my iPad and I play them. You take care of dogs and cats. And I am good at it. Sometimes on one of the games it is hard because you have to look very closely because when you miss a spot it says you missed a spot and then you have to do it again.

M: Do you have real animals?

L: Yes.

M: What kind of animals do you have?

L: Five cats and one dog. And I have many fish.

M: How big is your dog?

L: Pretty big. Almost as big as me.

M: What kind of dog is it?

L: A German Shepherd.

M: So you have one teacher except for specials. Do you have a favorite teacher?

L: I would say our library teacher because she is very nice. She doesn't yell like the rest of my special teachers do.

M: Does your librarian help you find fun books to read?

L: If we ask her for a book she will show us.

M: Is there anything else you want to tell me about school? Is there something you don't like about school?

L: I don't really like school. The only part I really like about it is recess.

M: Yeah? Do you guys get to go out when it is cold out?

L: It has to be 20 or over to go out.

M: Will they let you play with the snow?

L: Yeah.

M: Why do you like recess the best?

L: When we come for the first and last day of school it is really hot. I like recess then because we don't have to wear coats if it is over 60 degrees.

M: Yeah.

L: And at the end of school year we have these contests and it is so fun.

M: What kind of contests?

L: Sometimes it is a relay race or sometimes it is one class against another pulling on a rope to see who gets to the flag first.
M: I see, like a field day where you play lots of games.

L: Yeah. And we have a cookout.

M: So do you like recess because you get to run around and play and have fun?

L: Yeah.

TEACHER PARTICIPANT #2

M: Since you took the survey you already have an idea of what I am talking about. So I am going to tell you what my thoughts are and we can talk about it. I am interested in K-12 education. The idea of creativity and innovation and how businesses are talking about wanting to hire people who are innovative and have a specific skill set. Likewise schools are talking about creativity. I think those are really talking about the same thing. So creativity is what we are talking about in school and somehow when it gets into business its not creativity it is innovation, which is completely different and will blow your minds. So I asked you define both. And most people defined creativity and then go to innovation and were like “crap, what do I do now.” Now my thinking is we want an innovative workforce, but the way we are teaching students now is still fairly non-creative. And what I mean by creative in school is you are doing different things in English classes. Are you teaching now?

C: This is my first year that I am doing something different in school. I am not teaching in a traditional sense, and it is not my title, but everyday there is someone at my desk that I am teaching. It is usually math or English.

M: You said there creativity was important in education and you put it in different age groups. So can you talk about that?

C: I think creativity is important because it is the very thing that makes kids enjoy learning and want to go to school. Typically you have seen little ones like school and want to go to school because they like art and music. And then the older they get it is being squashed out of them. And then we wonder why a lot of middle and high school kids hate school. Creativity is often the fun end of learning. You take the fun out and then what is there?

M: Have you heard of the fourth grade slump?

C: Yes.

M: So after fourth grade they start to lose creativity and they have all these ideas of why they are less creative.

C: Could be that fourth grade reading guarantee, which will be the third grade reading guarantee next year. So you have to stop being fun and you have to pass that test. No time for fun anymore.

M: They have to show they can read by third grade?

C: Yes. You know common core?

M: Yes.

C: So common core starts next year. There will be the state assessments. Instead of the 10th grade graduation tests, my kids would take end of course exams and would have to pass the 9th grade English exam. If you don’t, you cant go to 10th grade English. So it also used to be a fourth grade reading test and they changing it to third grade. So she will get a test in October. Early in third grade. And if you cant pass the test or show growth by the end of the year, then they are supposed to keep them in third grade. I don’t know if it will pan out like the fourth grade did where they realized that 70% of the kids in third grade that cant do that.
M: So they pass these rules and then realize it is not going to work and they are going to hold back 70% of their classes?

C: Essentially. Maybe not in her school, but in some schools.

M: When you did the survey, did you find there were things that were common core related?

C: The questions that you were asking? Not really.

M: Because I haven’t looked deeply into common core yet, which I will. Have you heard of Rethinking School magazine.

C: No.

M: I subscribed to it so I could read more about it, including common core. Someone said something about my survey and it reminded them about common core.

C: No, I don’t think so.

M: Describe common core.

C: So up until this point Ohio had their test and Arizona had their test and New York had theirs and they were finding that some states were harder to pass the tests. So we didn't have this “across the country” standard.

M: So if you move from California to Ohio...

C: Right, you have to re-take the test and maybe you think you are really smart but your states standard was lower. So they created common core so everybody across the entire country takes the same end of course exam that covers the same material, which I think is horrible for a bunch of reasons. You can ask me if you want...

M: Yeah if you want to share.

C: I think even with no child left behind if you present it the right way it seems like such a good noble thing, but what it doesn’t account for is that there are so many variables are out of our control as teachers. By the time the kids get to me, especially since my school is a special situation, I might have someone come back at 20 who hasn’t been in school since they were 16 and I am judged on if they can pass the OGT. Then they come to school one day a week and they have four kids. There are just so many variables. So the common core is a really strenuous curriculum, which is fine for some kids. Not all kids are rocket scientists. If America is trying to compete with all these other countries and push hard and our kids have to be high achievers.

M: Do you think that is going to push the gap even further?

C: I do. It worries me. You have to college. And you have to excel at this and take algebra 2. And there is always going to be this group of kids that this is not their strong suit and that is okay.

M: You said something about your school will be fine and the third graders will be able to pass this test but some other schools may not. What do you think the difference is? Is it mostly socioeconomic. Are there other issues.

C: Well there are lots of issues that stem from less money. If you have less money you don’t send your kids to preschool. If they don’t go to preschool they don’t have the two years of background knowledge that she had going into school. I think they sometimes are forced to work jobs that your middle class folks don’t. I work 8-4 and others might not be home to work with their kids. Or some parents may be in doing drugs or in jail and not there or present for their kids. All of these socioeconomic factors that make it tough on those kids.

M: Okay. What do you think we can do for these kids that are lagging behind from the get-go? And your school is 16-22 right?
C: Yeah. Most of our kids have dropped out and missed a few years or have been incarcerated.

M: So if you are in a bad school or even a good school with no one at home to help you figure out your way. So what do you differently to help them?

C: We offer two sessions a day. So they don't have to go all day. This is why we go longer than a normal school year. They only get four weeks off for summer. That counts for the hours they need instructions. Sometimes that is all it takes, just a shorter day. They aren't built to do 8 hours of work. So that is one thing. We offer transportation. We buy metro bus passes for them. I know a lot of public schools are cutting busing. We also have partnered with Minority Behavioral Health. It is a local mental health, but not just limited to mental health, institution. It will help them fill out their forms to get child care or help them with their Title 20 or food stamps or housing. Even the kids that are in CSV custody, it will help them with their hearings. We have a psychiatrist and case worker everyday that will meet with them.

M: Do a lot of them have kids?

C: A lot of them have kids.

M: And a lot of them have jobs?

C: Yes, that is why we have the two sessions, so if someone has to work the night shift they can come in and still get their work done. We have a vocational specialist that does help them get jobs, work permits, internships, and college visits.

M: So he is trying to find something that they are interested in or good at?

C: Yeah. Because some of them will pump the brakes. It is so funny to see that they hate school the first year they are there, and then they get their case worker and it might be the only place that they get breakfast and lunch. And they realize it is not a horrible place to be. Then they get to a place where they only need 1-2 credits and it is amazing to see the kid basically sleep in class or show up twice a week instead of everyday. They will be scared to be done because they have no idea what to do or where to go. And we do have kids that go to college. We have kids that go to Akron U or Stark State, but then for every one that goes to college there are ten that aren't college bound. They are going to get that diploma and then they don't know what to do.

M: That is great that some go on.

C: Yeah. I think with the public perspective of what I do where a charter school is not a real school and you are not a real teacher. A lot of my kids despite all of their issues are really bright. The problem is their behavior is atrocious so people write them off as a problem kid.

M: So how many of these kids were told they are really dumb in their first schools?

C: Probably a lot of them. I hear a lot of “I can’t” or “I don’t know how to do this” or “I need help.” And I ask them what they need help with, and they haven’t even attempted yet. It takes them a long time to get past that.

M: What are your thoughts on Charters. You said you feel like people have the impression that charter schools are not good.

C: Yeah. Well I taught in public schools for seven years before I did this. And the I was part of a RIF (reduction in force). I just happened to be RIF'ed two months after a divorce and I am applying everywhere and I am on my own. Education is one of the weird careers where you experience works against you. Because there is union and the scale. So I am eight years in and have a masters degree so you have to pay me so much per year, so why would you when you can get someone right out of college for less. So I am not getting any phone calls. Then one of the local charter schools called me, [school name]. They can't figure why on earth I am there. They even asked why do you want to come here? But I took the job because I had to. Then I moved to this Charter school. I see where the perception is bad because you have these management companies that are obviously making money off of this somehow. So people think you are just taking these kids in and not doing much for them and the people that
own the company are getting rich. I think was true at the last company I worked for, which is why I switched to this company. There are open books. I can upstairs and ask what they spend their money on at any time, it is all there, open and public. They don't keep it private like the last school did. So I think some of the bad charter schools give a bad name to all of us. The truth is, even when I was in the regular public schools they don't want the kids that I have. The teachers throw them out of class. They will complain about them and move Johnny over to someone else's class and inevitably the first year teacher gets this kid and doesn't know what to do. One of my professors told me it would take three years to figure out how to do your job, and he was right. It took me three years to get my feet on the ground and those difficult kids in your first couple years can rattle you. It is not the best place for those kids to be. So they will complain that the charter schools exist, but they don't want to educate those kids. At least a lot of them. So why not give them someplace to go. We have 248 kids enrolled right now. We have two graduations, another good thing about our school. We will probably graduate 40. That is 40 more kids with a diploma so how is that a bad thing.

M: And some of them going off to college.

C: Yeah!

M: So they have to seek you guys out too right?

C: Yes, they do.

M: So they probably have some sort of motivation.

C: Yes, the 18 and up are great. The only ones that really still have an issue are 16-17 that have to be there due to court order. And we have a huge population of kids on special ed, and they have until age 22.

M: So in Design we talk about these bigger problems and how we can use the Design process to help solve these problem. In this design futures class we talk about using trends to predict what could be a possible outcome. So one thing I thought was interesting was that we, as a society, say that we want the same education for every child and we want everyone to be educated. We say that in one breath and in the next breath we are treating kids completely differently based on better neighborhoods with more money vs poorer neighborhoods. So when we are all this supremely educated society, who is going to clean the toilets? So, sure we want everyone to be educated the same, but if we really wanted to we could figure that out.

C: I think that is the same thing. We need people to deliver the mail and be grocery store cashiers and cut hair. None of which is a bad job or un-noble. There is nothing wrong with those jobs and we need people to do those jobs. And those aren't jobs that you need a college degree for most of the time. And you don't need to excel in algebra 2 or pre-calculus or write a thesis on British literature. So to say all of our kids have to be able to do those things, its the same concept if we are all up here, what do we do with what's left down here.

M: If there was some sort of resource that could bring all the resources to help teachers design more creative classes that would be valuable? Or is there another way to bring in more creative classes but still accomplish the same curriculum?

C: I would love that. I think a lot of teachers would use. A lot of teachers go online and grab a piece here you like and a piece there you like. A lot of teachers already share their blogs. Anytime I taught something I would Google it to see what pops up. So if there was someplace they could go to find those creative things you could within the confines of what you have to teach, that would be great. I guess it would come down to if you have a supportive administration too. I got in trouble one year with Lord of the Flies and they were supposed to write their paper on one of the three themes. I let them do different things. I tried to do all the different writing styles. You could act out a scene and bring it in. I had one student who travels with his band they are becoming more and more popular. He and his band wrote a soundtrack to the book. All original music. Performed it in class. Brought the guitar, sang the song, gave me the lyrics. It matched perfectly with the book. And the principal was livid because he didn't write an essay and it was English class. So how I was going to be able to know that he understand novel. I was like, look at everything I had shown you. He understand it perfectly. And this was a kid that didn't always come to school, but he was there that week. So I guess it depends on who your “higher-ups” are too. Somethings they don't appreciate the creativity.
They don’t really trust their teachers that I knew he understood. I was trying to do the exact thing you are talking about by giving these kids that have strengths in other places a chance to use those strengths to excel in the class. Or maybe he would like to read if he knew he could write a great song if he liked that book.

M: Right.

C: And I had kids that filmed scenes and they did legitimate seven minute movie that were good. You have to be a little bit fearless to be innovative in your classroom. You can be yelled at by your boss. Your idea can fall flat on your face. It could turn into mayhem. But you learn and do it differently next time. I don’t think any one of those kids, if it had gone wrong, would have been any worse off for their test.

M: I don’t know if I put it in the survey, but there is a lot about failure. A lot of people are talking about letting kids fail, because today most kids don’t fail, we don’t let them.

C: Yeah, the fear in my kids is unreal. Its always, how am I getting graded on it. What are you giving me point for. My daughters teacher sent home an assignment to go to any room of your house and using just what you have make a musical instrument. She goes to the kitchen and comes out with the box that crackers come in and pops a hole in it and hangs a rock climbing key chain through it and dangles necklaces off of it and shakes it. She names it the Tinkler 8000 and decides it is percussion because it is like a triangle. She didn’t hesitate to use a cracker box and some necklaces. And she was proud of the Tinkler 8000. Where as I think if you told kids the age that I teach them to go in the room to make an instrument.

M: They would try to make an actual guitar.

C: Yeah. Or they would panic and say “how am I supposed to do that” or “how big does it have to be.” They would have a million questions. Would the cracker box be good enough? They have this fear of failure and not being good enough. Or that someone might laugh at me.

M: Did you ever read the Torrance creativity tests? C Paul Torrance did tests starting with kindergartners for their creativity ability and they tested near genius levels. Then they tested them again in third or fourth grade and they decreased by a large percent. And by ninth grade only like 20% of them were still very creative. By the time they were adults they were barely creative at all. Do you think that is true, that as people get older they get less creative?

C: I don’t know if we get less creative or if we all had the creativity squashed out of us. Over achievers just don’t have time to mess around with creativity. They think “oh I just need to read this book and write this paper and study.” So I think some kids are so concerned about college and grades and scores that they look at creativity as a waste of their time.

M: Do you think that comes from your personality or from your parents driving you?

C: I think that is my personality type. I am very type A. I was the kid that wanted the rubric to know what I needed to do. So with creativity there is no way to say you are right or wrong, so that would stress me out.

C: I don’t know what is worse the parent that doesn’t care or the overbearing parent. When I used to work in the public school I would get the phone call about “why did my kid get an 88.” So I don’t know if the rubric came around to be able to show someone precisely why [you got that grade] which I think is ridiculous. Trust the teacher. And it stinks because of course there is going to be a teacher that is not doing what they are supposed to be doing, but I would like to think that most of us care and you can trust most us, to use what we know to make good decisions. And then we can say to a student’s mom “because she earned a B.” But to have to sit here and pick apart this paper over a 90 or an 88 is just a waste of everyone’s time. Trust me.

M: I just assumed there are a lot more of the less involved parents instead of the super involved parents. Do you think that if they were allowed to be more creative at home or encouraged to be creative at home, that would help?

C: Even my daughter goes to title 1. They identified a reading deficit. As early as first grade. She goes to title 1 for an hour
everyday. I have a K–12 reading endorsement. Of course I work with her everyday at home. We put her in tutoring over the summer. She is bright, and she is at 2.3 and should be at 2.8, so we are not talking about a huge difference here. But even with me at home and the school and title 1 and tutoring, she still doesn’t always get it. I think she has some of that learned helplessness we talked about. She said can’t read chapter books. I think she could, she just gets frustrated easily.

M: That learned helplessness, just saying you can’t do something because you haven’t done it.

C: Yeah, and then people help you. I always have to tell my mom that if she wants to know what something says when you are out and about have her read it. She is going to say she can’t, and you need to tell her to try. Because 90% of the time she can. It is just hard and she has to put a little effort in and it is so much easier to be adorable and show your dimples. Then someone will read it to you. I don’t think they are doing that for her at school and I certainly don’t do it, but there are enough people.

M: Do you think that has to do with the socialization with other kids? Maybe learning from other kids who say things like that and she picks up on it?

C: Yeah. I don’t know how they track that. We were together K–4. For here there were three different classes. There hasn’t been a pattern of who she has been in class with. I can’t really figure out how or if they track them. But I think she sees a friend read a chapter book and because she can’t do it that easily she just wants to quit.

M: So there is something to be said for Grit. Someone else talked about that, when something is hard to do and you want to quit, just digging your heals in and doing it.

C: Yeah. And I find it hard to balance... because there is part of me to be like “sit down and sound it out” But then I don’t want to be that parent either that is freaking out about everything. So if she brings a report card home and there is a two on there, ill ask “so why did you get a two? What do you need to work on. What can I do to help you do better?” “Am I in trouble?” “No you’re not in trouble, you can get twos, but you can try and make the twos better.” So I try to find that middle ground of caring but you need to do better, but I don’t want to ride her so hard that she hates me by the time she is nine. It doesn’t come as easy as it did for me.

M: So is it harder to watch for you?

C: Yeah. I got A’s. I just did. And it was easy. And I never had to try to get anything other than an A. But to see your own kid, and to be a teacher on top of it.

M: You want her to still enjoy and if she is having trouble now you don’t want it to be a bad experience.

C: Right. And they have done studies that have shown that in second grade teachers can say that one kid will succeed and another won’t and it is accurate.

M: I saw that.

C: It is a bit scary that her teacher can look at her and her classmates and tell you with pretty good accuracy who is going to make it. That early.

M: If there was one thing that could make your life as a teacher easier, what would that be?

C: I think more than if there was something I had, I think it was more about if I did NOT have all of these legislative demands. Does that make sense?

M: So you have all the resources to do it.

C: Right, it is trying to figure out how to use them within the confines of what they are telling us we have to do. We have to pass this test and we have to prepare them for this. And if they don’t, you are going to lose your job. Fear. Who is going to try to be
creative or do something different when your job is on the line. Or they are going to threaten to close your school if your kids don’t pass a test.

M: When I talked to another teacher, I didn’t realize that the kids’ scores on tests were basically the reviews for the teachers. So doesn’t it make you mad that if the kids go back to their parents and the parents don’t help at all at home so that reflects on your teaching.

C: Yeah. I love accountability. I am all for it. I think accountability would get rid of those tenured teachers that shouldn’t be around. But I don’t think that one test should be the be-all-end-all measure.

M: Is testing kids the best measure for testing a teacher anyway? Because you are testing kids and kids have varying knowledge. Shouldn’t there be a way to test the teacher directly?

C: Yeah, or a combination of things that make it more comprehensive. Because a student’s cousin may get shot the morning of a test and he may not show up to take it and that is outside of anything that I can control [as a teacher] but then we could have 5 or 6 other things to look at.

M: Do you feel like in the end education is sort of grey, but they want it to be black and white?

C: Yeah, I do. And I feel bad for the kids. Were you afraid you were not going to pass the ninth grade proficiency? Because we were the first class that had to pass it.

M: I had that weird sort of fear but I knew I would pass it.

C: That’s how I felt. It never occurred to me that I could fail it. That is how I was and still am, but in my heart of hearts I knew I would pass it.

What about kids like mine, who next year have to take the third grade reading guarantee will go into that test scared. How much of an impact does that have on how well they do? If I am spending the whole time thinking “I am going to fail this, I can’t read.”

So I wish that testing wasn’t the only measure for both student success and teacher success.

M: Yeah. That’s a big deal.

**Child Participant #3**

M: And if you don’t know what something means and you want me to explain what something means, just let me know.

T: I don’t get this.

M: You don’t get those two? Okay, this is just some kids sitting in a desk and this is a teacher helping kids. And remember you have this pile here so if you don’t think they matter you can get rid of them.

T2: They are not necessarily all subjects right? Some are experiences right?

M: Yeah, you can sort of interpret them how you like.

T: I am pretty sure those two are the same. I think these are both sciences.

M: Yeah. There are probably more than one.
T: Some of these go in the same places.

M: That’s fine. You can just pile them around there. Good, now let me take a picture of it real quick.

M: So you like the things over here more than you like the things over there?

T: Yes.

M: Can you explain why? You can pick one or talk about them in general.

T: I don’t really like math but I am pretty good at it. Well my mom says I am good at it.

M: That’s funny, because most people, when they are good at something, like it. You’re just good at it but you don’t really like it that much.

T: I’m good at it but I don’t really like it. But sometimes it gets a little difficult, but then ill be super good at it. At one topic in math.

M: It’s hard at first, but the more you do it the easier it gets?

T: Uh-huh.

M: Well that’s good.

T: And I put that there because I’m pretty sure that means art and I like to draw. And I like to paint.

M: Do you do that as part of school or at home?

T: Well, I draw sometimes at school during indoor recess, ill draw. My teacher has these little stuffed rats that I sometimes like playing with. She only has three, so if the other three are taken already, ill draw. And I also like art because last year I made a little creature, a paper mâché creature, in art class.

M: Oh, that’s cool. So you have art class?

T: Yes. Once a week.

M: Once a week. Okay. And you said indoor recess? Is that when it’s too cold or raining?

T: It’s too cold or it snowed, and they haven’t had time to get someone out there to shovel it. Or there is too much ice down, and they will have it indoor because they are scared kids will slip on the ice and break a bone or break their head.

M: Probably would, its so slippery out there.

T: And the teachers watching them will get in big trouble.

M: Yeah, we don’t want anyone to get in trouble for that. So, you said you have art once a week. Do you have music class in school?

T: I have music class in school, but I also had choir. And I really liked that. I had two music classes. I have instrumental where I play a cello and I have vocal.

M: Gotcha. And those are both during school?

T: Yes. With two different teachers.
M: Do you have those once a week?

T: Vocal once a week. Choir ended. And instrumental twice a week.

M: So you have choir for the first half of the year?

T: For the first quarter of the year, I believe, we had choir. Up until Christmas.

M: And then you switch into...

T: And then we went to play music.

M: Okay. That's interesting. And you go to public school?

T: Yes.

M: Where is that at?

T: Ummm

T2: What school do you go to?

T: I go to ... <something> French Immersion School...

M: Okay, that's really interesting that you have so much art and music. So you enjoy those, clearly, since those are there.

T: Yes.

M: You put the iPad here. Is that because you like to use it?

T: I put iPad there because it's electronic and sometimes we go to the computer lab. Or we get to go on study hour.

M: Do you like that part of school?

T: I like study hour.

M: Do you guys plan on computers, do you ever play on iPads?

T: No. I put the iPad because there are computers.

M: Yeah. I took the computer out because someone told me there was too much technology. My kindergartner. So I simplified it. And books... you brought a book with you. I can't tell you how much I love that because I can't tell if kids these days like books or not. So do you like books?

T: Yeah. And I also put books there because at my school you get to take two books. A French book and an English book.

M: Interesting

T2: You get to take some?

T: Borrow them.
T2: From?

T: The school library.

M: That’s really cool. So you are in a French immersion school. Does that mean you are learning French too?

T: Yes.

M: So do you have a specific French class or do you have to speak French in some other classes too?

T: Well, my class, I switched classes, and my homeroom teacher, she teaches the French, so I am mostly doing French all day. But then we switch to the other teacher where she does math and science.

M: And that’s in English still?

T: Yes. We don’t do French math and science.

M: That would be hard.

T2: Do you other subjects in French?

T: We read in French. Ummm. Not too many subjects in French I guess. Well last year, no. Before we switched teachers we would do math problems in French. We would have... <Speaking in French>

M: I got like six or seven of those words. I got like, “four”...

T: I said, Lilly has fifty candies. She gives three candies to four friends.

M: Okay, I heard the “four friends”

T: And I forgot how to say each. Three candies for each friend.

T2: So you did word problems in French?

T: Yes. And then we would have to figure them out in word answers in French.

M: Wow. Do you think that it is helpful for you even in English? Thinking about it in two different ways?

T: I think it is helpful because if I don’t get a word in English, I might get it in French. And if I don’t get a word in French I might get it in English.

M: Gotcha. Do you guys help each other in class, when you are speaking French?

T: Sometimes we work in groups in French. We would read a book as a class and then every two people would be in a group and you would have to do a worksheet.

M: Okay.

T: You would have a whole bunch of questions in French and you would have to answer them in French.

M: But you had a friend you could always ask.
T: The person next to you most of the time.

M: So they might know something that you didn’t know and you might know something that they didn’t know.

T: Yes.

M: That’s really fun. So what is your favorite part about school? We talked about this and those can still be your favorite parts about school, but do you have a specific part about school that you really like?

T: Well, I really like art class. I really like how to play the cello. And learning how to speak in French.

M: Why do you like those better? We’ve already established you are good at math, but you just don’t like it as much.

T: I like Art because it’s really creative. I really like learning to play the cello because if I learn how to play the cello if my brother or another family member learn to play a different instrument, then we could play together.

M: The family band? I like that.

T: Then I like learning French because I really want to go to Paris, France.

M: Good, I was going to ask you if you wanted to go somewhere and speak French.

T: And my mom said I can only go to Paris, France, once I am fluent. So I go with them and dad and my brother so if we go to a French restaurant and all they speak there is French I can order for everyone.

M: You’re going to be the translator. But then you can order gross things for your dad and he wouldn’t know until he got it. I am not putting ideas in your head.

T: <giggles> No. But I would do that to my brother.

M: How old is your brother?

T: He is seven.

M: So he is younger than you. I had an older brother.

T: But he’s still into power rangers. So sometimes on weekends when we are up watching TV early, I’ll be watching TV a little earlier than him, and he will just wake up and standing behind me then … <fades off>

M: Ohh, little brothers do that don’t they. That’s fun. So you like playing cello and you said you like art because it is creative. Do you think there is a way to make math creative?

T: Maybe if you use colorful blocks in your problems. Like if you were dividing… Like if you were using blocks with six blocks and you were doing fractions. If you had a bunch of fraction blocks. They would help you use times and division.

M: Do you think if your teacher taught math more creatively you would think it was more fun? So if she had things like that? More visuals?

T: I think I would like it better.

M: You think you would. Do you know why this is?
T: I'm not sure.

M: You don't have to know what it's called. It's called an abacus. Do you know what it is for?

T: It is for finding out, well. I only know that sometimes people use it to make sure that they have enough of everything.

M: Okay. It is actually a way that you can do math. It is how people used to learn to do math. You can use the little balls to count. I just learned how to use one, because I have an app that taught me how to use it on my phone. Because I had no idea how it worked? Isn't that fun? So maybe a math teach has one and you could ask them how to use an abacus. It might be too late, but I thought it was really interesting when I found out what they were for. I had no idea. And I am way older. So, you said you like to be creative. Do you think that you are creative?

T: I think that I am creative and that is what helps me be a such a good chef, because you have to be in that book is telling you that you have to be creative if you are cooking for other people because you have to make the plate look pretty.

M: Well not only that but how do you choose what things to make together? If you are following a recipe it will tell you.

T: If you are following a recipe it will tell you, but if you’re just following the buttered chicken recipe, but it doesn’t have any sides that goes with it, you have to be creative to see what would look good with it and taste good with it.

M: Yeah, absolutely. Do you wish they had cooking class at your school?

T: Yeah.

M: They don’t offer one do they?

T: They don’t offer one, but I wish there was.

M: That would be fun. Do you think there are people in your class that aren’t creative?

T: No. Pretty much everyone in my class is creative. A lot of people like to draw and a lot of people are very good in art, and I really like our teacher. Like more than any. Its super good.

M: Yeah. I like art a lot, but I am not super good at drawing. But I like to draw. I think that is all that counts.

Let me see what other questions I have. You have answered so many of my questions already. And I like talking to you so I just want to make up more questions to ask you.

Do you dance in school? Do you do any kind of dancing or physical activity? Like gym?

T: We do gym class. Our gym teacher gave us a four week assignment, every time we went into gym we would lay down on the mats and practice a gymnastics routine. Then on the fourth week we had to show him our gymnastics routine.

M: Okay. You made it up yourself?

T: You would make your own up.

M: Okay, that is creative too. You got to decide what you wanted to and tumble around.

T: Yes.

M: I want to go to your school. It sounds really run.
T: It is.

M: you really like it?

T: Yes

M: Do you think everyone else that goes there really likes it too?

T: Yes. But there are some kids who my teacher will ask a teacher in French to and they wont even try to answer it in French. They will just say it in English. They don’t try too hard to answer in French.

M: Does that bother you?

T: A little because I want to hear what they want to say in French. It is a French immersion school. We came to learn French and talk French.

M: Yeah.

T: Not English.

M: Exactly. So these kids are just going there and speaking English. That’s silly. Is there anything else about school that you like? What do you really not like? You said you are really good at math but that you don’t really like it, but is there something you really don’t like about your school?

T: I don’t like the food. The cafeteria food is disgusting. One time in kindergarten I tried pizza and the pizza tasted like it had a gallon of oil in it. It was super super oily I’ve never eaten school pizza since.

M: No? But you do eat some of the other school foods?

T: Yeah, and sometimes they have super good stuff. But its not really healthy for you but it tastes good and it looks good. So I’ll eat that, like walking tacos. It’s meat, cheese, burrito, in a little box. And you get a bag of tortilla chips.

M: That sounds pretty good, but not very healthy.

When you cook, do you like to cook healthy things?

T: Well at home I will cook, but sometimes it won’t be super healthy. Sometimes I’ll make some unhealthy stuff, like pretzels, pizza. Sometimes I’ll make pizza with not the best ingredients.

M: Depending on what you put on it.

T: Sometimes I’ll make chicken or fish.

M: Okay.

T: And sometimes ill make tacos.

M: It’s okay to make all kinds of different things, right?

T: Yes.

M: You don’t want to eat super healthy stuff all the time.
T2: You make a lot of the breakfast stuff too.

T: I do make good breakfast. I make, usually it is a day where we need to be somewhere, and I don’t start cooking until like 9:30 and we need to be somewhere by like 9:45, I’ll make eggs, scrambled eggs and toast. And everybody will eat that except for ..

But sometimes when we have more time to spare, or we don’t have anything planned at all, ill make pancakes.

M: Oh, that’s what I had for breakfast. But my husband made them because I won’t make pancakes. I don’t cook. I need you to teach me the love of cooking. Because my poor son, when he stops eating baby food, is going to have not very good food to eat. Ill ask your dad to ask you questions for me, so you can tell me what to make. Okay, so beyond the food, is there anything else about school you don’t like?

T: Well I didn’t like how they changed, last year we had a different art teacher and a different gym teacher, but this year our school collided with a Spanish school, a Spanish immersion school, so we got the art teacher from over there but I didn’t really switching because the art teacher we had, I had since kindergarten to third grade. I really really liked. He was super nice.

M: Awww. When those schools collided, did the Spanish speaking students have to start speaking French or do they do both?

T: They just did what their school does, but our teachers go over there and we share a principal.


T2: The school didn’t actually combine, they share their specials.

T: And the principal used to be at the Spanish school and our principal had to quit because he had a baby and he needed to spend time with the baby.

M: I can understand that. So it’s just two schools where they share some of the ..

T: We share the specials teachers and the principal.

M: Well those are all the questions I have for you.

**Parent Participant #3**

M: Okay, I am going to have you do the same thing.

T2: Okay. For me?

M: No, it is going to be that this is the most important and this is the least important as far as her education is concerned. I assume you saw what she did, but you can do things however you want to. And feedback after we are done about this whole layout is appreciated.

T2: Right.

This is hard.

M: It is not supposed to be hard. That’s only the first pile for you to go through.
...discussing piles of cards...

T2: It is hard because honestly I cannot say that any of these are less important than the others, ya know? Some of these I am like “what do I think I am using these to represent?” Then part of the thing that is hard about this is that I come from a lot of the same background as this type of research. I am probably over analyzing it.

M: Yeah. It’s just English.

T2: Well, okay. That one is just English, but this one is ...

M: Well yeah.

T2: Is this abstract thought ... or open expressions.

M: It is just a kid writing on a white board.

T2: Right. This one is collaboration, right?

M: Just some kids playing with some blocks. You can think more deeply about it if you want, but you’re not expected to think super deeply about them. And, today as I was talking, the things that you think are important to your family in school you have already instilled in your family.

T2: I am really counting on school to make her better at math.

M: That cookbook would be cute and I would buy one.

T2: These ones, I am just using this one for science in general. I think science is as important right now, I am not too concerned if it is genetics or chemistry.

M: Astronomy.

T2: Right. Lecture. I guess we need some stuff to put down here as not important. Lecturing is not important. One on one is.

M: Unless you want to be like the kindergartner, because he thought everything was great.

T2: Alright.

M: So why do you think ...

T2: There are times when that’s important, but I don’t know.

M: It is less important than the others. Why do you think that your first reaction was to put it in the least important?

T: I think that there are times when ... This one is representing a traditional lecture format. Stage at the front. Sponges in the seats. I think there are times when that is probably a good approach, but I think that it is more important to me that there is more one-on-one. I like this one a lot more as a method of instruction. This one is my class.

M: Standing in front of the ..

T2: Right. This one is more engaged. I would like her education to be more engaged like that.

M: Gotcha.
T2: I kind of put the reading, English, and writing stuff ahead of everything else because we talked about homeschooling at one point. Both my wife and I decided we need professionals to do the basics. Once she knows how to read, write and basic arithmetic, we could take it from there. I could teach algebra and geometry and advanced science. But she has to be able to read.

I am counting on the school system to take care of a lot of this basic stuff. Then I think everything else is really important. I think that at this stage of the game it is not about finding what she is truly passionate about. It is about being well rounded. You have to know math, some history, some science.

M: Yeah. How do you think that creativity is involved in all of that?

T2: I think creativity stems from a broad understanding of stuff. I don't know if you read my definitions of creativity, but I think that right now she sounds like she is defining creativity as being more about the arts, but I don't think that is necessarily what creativity is.

M: I feel for kids, that is how they can related to that.

T2: I guess that's why all this other stuff is really important, because eventually that is going to be the stuff that really matters. When you take the stuff you figure out here and apply them to the things you figure out here and you throw a little bit of this in there, then, oh shit, now it's creative.

M: Yeah. Interesting. So we can take all of these, and we are done with those.

T2: Okay.

M: You get more. So this is creative or innovative and this is not creative or innovative. I just want you to sort them in a line. This is “I don't know, or I don't care or it doesn't make sense to me.”

And keep in mind that this is the pared down version.

T2: I am just trying to see what all we have here. Kids... Hipsters. Maybe they go over here with these preppy fashion guys. People... or just general fashion. So creative or innovative, and not so creative and innovative.

M: Right. And the middle is just not so.

Taylor Swift and One Direction are just representing music. I just wanted to give them a face.

T2: I kind of feel like these guys are all representing the same thing. So I am just going to pick one.

M: Are you happy with that?

T2: I think we are good. I think we are about as close to that as we're going to get.

So I don't know if any of these are influential people, but some people might be like “that's so-and-so.”

M: Yeah.

T2: If I then knew that this was some big wall street dude or something, I might do something different.

M: Yeah. So I guess if you had to split it down the middle, would you have put these over here? Which do you think are the most creative?

T2: I guess I am having a little trouble right in here. I have Albert Einstein and Steve Jobs at the top intentionally. I think both of them represent creativity and innovation in the sense of being very multi-disciplinary thing. Even though people generally think
of him as a scientist, but he was a lot more than that. In general, preference for young people, this was very intentional. This kid playing soccer versus these professional athletes. I feel like once you are the pro level it is pretty calculated.

M: Yeah, the reason you are playing is no longer just because you love baseball.

T2: And even if that is still the reason you are still playing it is still such a calculated and controlled game at that point. I don’t even find watching professional sports fun because 1. They get paid ridiculous amounts of money, so they better be good at it and 2. it is so calculated.

M: It is almost like science at that point. It is like chess, I move here, so you move here.

T2: Yeah, right. Even the announcers will announce things before they do them. This would be a great time for them to go to the classic blah blah blah blah.

M: And then they do it. Or they don’t do it and then they say “oh they should have done it.”

So let’s say this is the representation of you. Where would you put yourself on the scale of creative or innovative or not creative or innovative?

I mean, how you view yourself.

T2: I am going to put myself right in here.

M: So right near the middle?

T2: Yeah, but more towards the creative side. I do identify as a creative. When people ask me to describe myself, creative would come up with it. I am not sure why tho. I have just always believed I am creative, and told I am creative.

M: Yeah.

T2: I never got to a point where people stopped telling me I was creative.

M: Yeah. So you can sort of prove you are creative, but at a certain point no one questions if you are creative.

T2: Yeah. It is like once you make it through some certain threshold, where you believe you are creative, then other people are like “oh okay.”

M: Okay, interesting. So as a parent

T2: I wouldn’t consider myself artistic.

M: Thank you, yes. Those are two different things.

T2: Right.

M: My artistic ability and creative ability are completely different. So, clearing the school that [daughter] goes to is progressive. They seem to have arts and different things that some schools are lacking. Some of the questions about creativity might not match up to what regular schools would have. Some schools don’t have art anymore. She was talking about recess, and some schools are trying to get rid of recess.

T2: Really? And that’s one thing that I don’t really like about her school. They have recess, but, and maybe it is a little better now, but with their old principal it was no running during recess. Like the other day my son got in trouble for playing with snow at
recess. Because they were not supposed to go in the snow. So they have recess and it sounds like they have a good time at recess, but ...

M: .. they just stand around?

T2: Yeah, they are all supposed to be “too cool middleschoolers” to do something.

M: They are like “we are not going to play we’ll just stand here”.

T2: But then they have the old-school playground equipment. The stuff that we had that schools being built now don’t have cause it is dangerous. Like the dome made out of steel.

M: I am going to make assumptions here and if they are wrong you can correct me. Since she is in this school do you find that there is some sort of benefit to creativity in education? The French immersion sounds like an interesting thing for someone to choose. It is not just like science and math.

T2: Our decision to go to a French immersion school with her and her brother was sort of calculated but sort of haphazard too. We knew we weren’t super stoked about her homescool. Not that her home school is bad, but it is just like normal school. So we tried the lottery into three different schools. We tried the French immersion school because we had a friend who had went through that school and she raved about it. She now speaks seven languages. She is younger than me and finishing her PhD. She is a super bright person. Now part of that is that she is just a super bright person. But she just loves the school, so we were like “okay.” And we got into all three lottery schools. So then we were like, how do we pick one. We weren’t supposed to get into all three. We had the French immersion school, and one downtown with more of a world perspective, an international school, but no specific language, and then Clintonville, where all the hippy parents send their kids. So we got into all three. So we asked [child], these are the three schools and what they are like. The Clintonville one is a free thing and it will be a lot like preschool was. The international and French school, and she picked the French school. So, okay, if that’s the one you want to go to, that’s the one you will go to.

M: So is that a charter?

T2: It is part of Columbus Public, it doesn’t cost us anything, but it is a lottery only school. It is no ones home school.

M: So anyone that goes there, wants to go there.

T2: Lottery. Right. She was talking about the kids that don’t try. There are a lot of kids that go there because it is just a better school than their home school.

M: Yeah, and they probably didn’t get into other schools.

T2: Right, and they were not necessarily like “Yay French!” Ya know.

M: That makes sense. So her school one where she is in the school then her siblings can get in without the lottery?

T2: They still have to lottery in, but there is a preference for siblings. <<child: was actually on the waitlist for it, but all the kids who were siblings on the waitlist get moved to the front of the waitlist. And so he was like 10 on the waitlist, which had us really mad for a while. But he ended up getting in too.

M: Interesting. Now I have this whole other part. Lets talk about how you defined creative and innovative. I thought it was inter-esting. It was something like they are nearly the same but innovation is an applied creativity. Creativity is making connections between concepts not previously connected before. Innovation is the same as creativity but adding sensitivity for culture, precedent and market. So, just talk through that for innovation.
T2: I think for something to be innovative, creativity is a part of that obviously, but something isn’t innovative until it finds its niche. You can have all kinds of creative ideas... The iPod was not the first MP3 player or the first portable music player. There were all kinds of things that came before that were creative. They all took this idea of “what if we made music digital and mobile” and all this stuff right? It wasn’t an innovative product until that right fit with the market happened. No one wanted the MP3 player until Steve Jobs, coincidentally in this case, stumbled upon that right mix of market price and interface that resonated with people and fit into that user experience and timing and all that. So innovation has a lot of other, almost random components, that have to align. I don't think you can teach innovation. I am not sure you can teach creativity either. I think you can create environments that allow for creativity and you can do things in schools that don’t squash creativity. And don’t make people have that moment that we were talking about earlier. I somehow made it through that threshold of no one every telling me I wasn’t creative. Right?

M: Yeah.

T2: But I know all kinds of people who didn’t make it through that threshold.

M: Yeah.

T2: And they are probably creative people too. If you talk to [person] she is going to tell you the same thing, they are all creative people. We just have to remind them of it.

M: Yeah, definitely.

T2: And I am not 100% sure the best way to describe it, but I think innovation has a lot at work that is outside your control.

M: Business would call it top line revenue growth.

T2: Yeah, I don’t know.

M: I took an innovation class in the business school. It was all about top line revenue growth. That’s so fun.

T2: See, I don’t think that has anything to do with it. Yeah you can have innovative products that stand to make people money probably.

M: I’ve found that businesses today are talking about innovation and they want to hire innovative employees and they want innovation. What do you think about that?

T2: My gut reaction is that I don’t think you can ... I think that is a stupid goal, you know? As a business you should be trying to foster peoples’ creativity and supporting people that you think are bright people, and that good things are going to come from it. But to strive for innovation is kind of silly. You can strive to advance markets or strive to push technology, but innovation seems like such a buzz word right now. Like, “yeah let’s innovate.”

M: Yeah, what does that even mean?

T2: Innovation will happen when you cross certain thresholds and you break down certain paradigms or you change those paradigms or you change the way people think about things. Innovation is something that happens in the past, it is not something that happens in the future. You can’t plan for innovation. Velcro was really innovative.

M: Yeah, the guy that made it wasn’t like “I am going to be innovative.”

T2: “I am going to innovative fastening systems.” No.
M: And a lot of those things end up coming from mistakes anyway. Like super glue. They are like "whoops" and then all of sudden they have something useful.

T2: Post-it Notes. The guy who invented Post-It Notes for 3M was trying to make a super strong glue, and he accidentally made one that was super weak.

M: And then he was like "oh this is actually better than what I tried to make". I find that interesting.

T2: I think innovation is a stupid goal.

M: Do you think there is a value in teaching kids to be more innovative or creative? Let's use that term sort of loosely. For their future? If businesses are saying they want innovative people or people who are able to be innovative, do you think that is something we should imbue into education?

T2: Yes, if it means that we are educating in a way that fosters or allows for creativity, which currently we are not, I would say. Even at her school, which I think is a fairly creative school, it is becoming less so because of standardized testing is getting pushed into it. I think that, yes it should be something we are striving to do, but in order to do that the root there has to be a return to what education was before we industrialized it. When it was about equally understanding the world around you and that it is all not streamlined.

M: Not just learning to take test and memorize answers but to actually learn.

T2: To learn skills actually necessary for the world and to understand how the world. And to think critically about things and to analyze literature and social constructs. All that stuff that education was supposed to be about before the 1920s. Before it was bells postponing the work force.

M: Well that's a fabulous segue. I am going to stop recording now because I want to tell you about my thesis.