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Project-Based Learning in an Ever-Changing World: Experiential Revelations from the Field

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For My Mom who always puts her students first

Table of Contents

Why Am I Doing This?

When I was younger, I never questioned education or school besides your typical "why do I HAVE to go to school?" or "can I skip today? I'm *cough cough* 'sick'". Often these questions arose from the dread of going to school that particular day whether it be because I had a project due or a presentation in front of the whole class - although a couple of times, I really was sick. Thinking back, these days tended to correlate with the expectation of reprimand or a bad grade for not doing well enough. That's just how school works though isn't it? The better I could do at reaching set goals and getting good grades, the better I was at school and the smarter I was. For a long time, that was all it took for me to be motivated to get up everyday and go to school.

In the midst of my time as an undergraduate at DePauw University, my mindset began to shift - slowly at first, but eventually, I reached a point that I could not ignore. It felt unsettling at first like one of those life revelations you wish you could unknow before it taints your comfortable view of the world. Once you know something, however, it becomes impossible for you to unknow it. I knew that something felt off about school that I had never noticed before. The classes and moments that were bringing my joy were not the same classes and moments that had given me joy in the past. Crafting a poem, discussing a novel, learning a new scientific technique - these things brought me more joy than memorizing all of the amino acids or acing an organic chemistry test. Did that mean something was wrong with me? All my life I thought I understood the "why" of education, get a good job and then find the things that make you happy. Until I reached that point of no return.

To start this dive into my relationship with education, I have a short summary of the first eighteen years of schooling. I could start in elementary school and slowly march through all of the grades, but my attitude towards school did not waver much from kindergarten through high school. All of the grade levels I passed I did with a breeze of A's and minimal effort which truly only increased around the time for applying to colleges. All of the grade levels felt like a competition, like there was only so much room at the table for highly educated people, so you best get there first and grab a spot. Moreso in high school, the race to be in the top ten ranking of GPA pushed me to work hard and get stellar grades. It may sound stressful, but for me at the time, it was just what I did every day. The A's I would earn from slaving away were my ticket to the next part of my life - college - where I would be just one step closer to getting a job and making my own money. For me, being in control of your own money was the key to happiness, and for the entirety of my education until I was eighteen, school was just a means to an end.

That first year of college, however, was no joke. The classes were hard and the expectations even higher. I was no longer special. In high school, I thrived being part of the elite students where I found most of my friends. At DePauw, no longer was I part of the elite. Everyone had come from the "elite" of their own high school, so we entered an environment of highly intelligent learners. To rejoin the elite, you had to sacrifice. Time, money, sanity, anything to keep getting those grades that define you in the university and ultimately in life. My freshman year, that's exactly what I did. I fulfilled the typical college stereotype: coffee, study drugs, no sleep, no food, and I got exactly what I needed. As long as I had good grades, I felt good about myself. I didn't care if I remembered the material past the final. I just needed to get the grades to get out.

I kept up that rigorous, exhausting routine for a while until eventually came across a professor who seemed different than those I had already had. A professor grounded in the real world who acknowledged our lives outside of the classroom. She would ask about our days and check in on students who seemed bummed or "off". She has a daughter in college who's the same age as all of us, so she knew what it looked like when we left the classroom. Instead of ignoring that, she would acknowledge it and make sure that the work assigned in her class wouldn't cause waves of panic and sleeplessness. All of this empathy and kindness came from a chemistry professor. Typically, STEM professors have a stereotype of being unrelenting and tough, but she completely shattered the stereotype for me.

As I started making the new connection with her, I got my first B on a test, and I was devastated. That might sound dramatic to you, but that had never happened to me before. I thought to myself "I must not have tried hard enough" and "Next time I'll study until the test starts". I looked at my best friend who was planning to be a doctor, and I said "This is how it's always going to be isn't it? Striving for As and feeling absolutely devastated when I get anything less". The feeling from that day has stayed with me until today. Receiving one "bad" grade crushed my self esteem and pushed me to work myself to death for an A next time. I talked to my professor who also doubles as my advisor, and I said I did not want to go to medical school. She asked me why and I explained that I could not live my life like that for the next 12 odd years basing my self worth and confidence on test scores and grades and numbers. It didn't seem fair. She agreed that I shouldn't continue if that wasn't what I truly wanted which gave me confidence.

My anxiety over the looming presence of grades and numbers subsided for a while as I progressed. My second semester junior year, I again came head to head with that anxious feeling about school. I was taking a class for the Honors College, and it was a sort of philosophy class about two different writers. Philosophy definitely was not one of my specialities, but I had always wanted to try to read it. The set up of the class was also unlike any I had ever been in before. On the first few days of class, we spent time discussing and creating the syllabus for the class. Never before this had the students had any say in the syllabus. Professors created them, gave them to us the first day of class, and expected that we understood all of their expectations. Instead, we worked together to determine the rules and expectations for the class. We all felt as though our voices had been heard and taken into consideration when coming up with the schedule and flow of the class. Already, the class had become an instant favorite of mine.

Our professor felt like a member of the class, not an overseer who held all of the knowledge. She learned with us as we learned and helped to guide our thinking when we started to stray too far. The relaxed and welcoming environment immediately sparked learning, curiosity, and excitement. I felt those things before in a classroom when learning about a subject that fascinated me, but it never lasted. Those feelings stayed with us for the entirety of the class. I thought to myself: “This is how it’s supposed to feel all the time”. I felt heard. I felt appreciated. I felt like I was learning for the first time in a very long time.

I couldn’t stop thinking about the way the class made me feel. I wondered what it would have been like if I had learned in such a way at a younger age. Would I know more? Would I know what I enjoyed more? Would I have found a place I felt completely sure and safe in? These questions continually ran through my mind as we progressed and their presence felt urgent. Deep

down, I know I had stumbled upon something very important, and there had to be a way to continue to explore and share these questions and feelings.When the time came to choose a year-long project, I knew I wanted to focus on this newfound feeling, but I wasn't sure how to go about it. The requirements for an Honor Scholar thesis included a 60 page paper and a thesis defense meeting both of which sound terrifying at the beginning. I remember the feeling of calm I felt when taking Beth's class, and I decided to focus on that feeling to start the project. In doing this, my research and conversations led me to the concept of project-based learning. I had already started asking the right questions about myself and my education, and I found others who had been asking the same questions and the same feelings for quite some time. All I needed to do was dive in.

Conversations about Education

After settling into my decision to dig into PBL, my research led me to an enormous amount of authors who shared many of the same sentiments with me. It felt as if I had finally been connected with kindred spirits who have been saying the things I'd started to feel for myself. Educational pedagogy had never been a natural part of my education. Being a science major, my experience in theoretical education was limited. I felt compelled to begin looking for educators who mirrored those ideals I had just discovered. I needed to know more. This section details all of the kindred spirits I came across in my searching, and how I have seen my own ideals and dreams mirrored in theirs.

i. Education

The first and one of the older pieces I came upon was written by John Dewey, one of the leaders of educational reform in the twentieth century. His pedagogic creed peaked my interest mainly because he clearly outlines and describes what he thought the most critical parts of education needed to include with passion and confidence. He defines so many aspects of education that I had to stop and wonder, what really is education? Take the actual word education for example. Education as defined in the Merriam-Webster English Dictionary defines education as "the action or process of educating or of being educated" ("Education"). Not exactly a straight-forward explanation of one of the most critical pieces in any human's lifetime. This open-ended phrase about education leaves a blank for almost anything to fill. Education happens from the moment of birth until the moment of death; it does not have to occur in a school building. Ralph Waldo Emerson shared this sentiment in his oration later titled "The American Scholar". He warns that typical studying such as reading and pondering books written by others cannot compare with the brilliance of creating one's own work. He emphasizes this statement by elaborating on the differences between a simple man and a genius explaining that men "look backward and not forward. But genius looks forward: the eyes of man are set in his forehead, not in his hindhead: man hopes: genius creates" (Emerson). While reading and processing information from the past remains an essential part of growing one's knowledge, true genius comes from looking past the information given and creating something new from it to benefit mankind. Emerson was on to something when he pushed the idea of creativity as a pinnacle of human knowledge and expertise. Current educational standards with their focus on standardized testing has condensed human intelligence into a series of numbers. Those who hold

the highest numbers thought to be the brightest, but they merely have swallowed loads of information from the past, not much creativity has been used in procuring these numbers.

If such a key facet in education stems from the imagination of each individual, it makes sense that all education does not have to come from the halls of a school building and from the lips of a certified teacher. Human beings begin their education at the moment of birth, using each new surrounding and each new person in their lives as a well of knowledge. Most of this type of acquired education happens during the early stages of life, and Dewey explains how "through this unconscious education the individual gradually comes to share in the intellectual and moral resources which humanity has succeeded in getting together" (Dewey). Without the continuing unconscious education that occurs at a young age, children would struggle to understand almost anything about the world. The most pertinent example of this comes when a young child's "instinctive babblings" that come together to form a coherent language only after "the response" to such babblings comes from those around them. In this manner, Dewey's answer to the question "what is education?" leads into Emerson's emphasis on the power of reading and then creating. Without the ability to read or understand language, children will not be able to share in the wealth of information that has already been amassed.

Once able to share in that knowledge that has been passed down for centuries, Dewey underlines the importance that every human be able to access bodies of knowledge from the past and asserts that education became a public resource required by law. Dewey describes public education as having the ability to "organize [education]; or differentiate it in some particular direction (Dewey)". Education as most of the world understands it explains the concepts and benchmarks reached when studying in a school building under the watchful eye of a teacher or a

professor; this image often lacks the social and psychological parts of development a child experiences while in school. On the playground, children learn to make connections with other humans their age and how to interact and play with them in a socially acceptable manner. Inside the building, they learn how to properly share a space with others, how to keep themselves accountable for taking care of the space, and how the inside space of the building is different from the playground space. In order to make a transition from living at home to going to school everyday easier for students and teachers alike, Dewey suggests having the children's days as close to their home lives as possible; the similarities will allow children to think through why they do certain things and give them a sense of control over their thoughts and actions (Dewey). Because they have already started to grow their personal bookshelves of lessons from home, making the transition from home to school as seamless as possible allows children to build upon what they have learned and create new ideas about society as a whole. Without this transition, children miss out on many learning opportunities about moving and interacting in society. All of these lessons learned without even opening a math or reading textbook.

Until recently, the “what” of education to me was the act of going to school, taking classes, doing the work in exchange for the letters and/or numbers that would define my place in the next segment of human life. I never considered all of the educational happenings around me at all times even outside of the classroom. In her book *Educational Metamorphoses,* Jane Roland Martin includes a section on the transformation from a creature of nature to a member of human society; this transformation refers to much of what a newborn learns before they even enter the educational system and is very similar to Dewey’s insistence on the importance of early years of learning. Her section uses the example of Victor, a feral child from 1800s France, who

immediately becomes the object of scientific and philosophical study due to his lack of many human characteristics. At the biological age of 12, he could not speak, could not walk bipedally, or even understand basic human emotions and feelings. As part of an experiment, Dr. Itard and his housekeeper made it their charge to transform the boy into a member of French society. After five years, Dr Itard writes of Victor's progress including the "ability to express his wants to [others], to receive orders from them, and to effect a free and continual exchange of thoughts with them," (Martin 36). Victor was essentially unrecognizable from the feral child of five years prior. If we look back to my definition for the "what" of education, Victor was not educated at all. Not once did he enter a school building, turn in a homework assignment or anything of the sort. These criteria encompassed my full understanding of education for the greater part of my life, all of which had been predetermined before I started schooling. In Victor's case, the experts at the time brushed his accomplishments aside and claimed the experiment a failure. Martin offers an answer to why claiming "his intellectual development has not progressed as the experts believe it should have, and most damaging, he has not acquired spoken language" (Martin 32).

From this, we can learn that, at least in the 20th century, being able to speak a language constitutes being a human and allows you to continue along the path of education. None of the milestones that Victor achieved were not notable enough to earn praise from academia if he could not speak like a twelve-year old should. According to Dewey, the beginnings of understanding language start with communication between the newborn and the adults who raise them; however, once a young child enters the school system, they continue to expand their vocabulary and build on that knowledge. This begs the question, yet again, what is education and how does it turn us from an animal into a human? The experts in Victor's time dismissed his

progress and denied that he had received education; however, without his mastery of interacting and emoting with others, it seems logical to assume that he would never be able to move on and learn more intentional skills such as speech. Martin dives into the issue of the home and its place in what she calls "the first great metamorphosis" that all humans must pass through. She acknowledges how this first transformation gets passed over as education because it relies "not only on hard work but also the circulation of love" (Martin 43). The love part made immediate sense to me. Most often, newborns' first interactions are with their mothers, and from them, they start to learn the foundations of language and communication with other humans. To scholars, the necessity of love excludes this portion of development from the definition of education and has no place in the classroom.

ii. Relationships

As I get further into my education and even further into my research, I have found that a relationship formed between professor and student holds more power than people think in the experiences of an individual's education. Many educational pedagogy articles and books place heavy emphasis on how to modify teaching practices to fit into this new age of learning and society; a number of these sources recommend a more personal approach to teaching is vital to the success of students of all ages, races, ethnicities, sexual orientation, etc. Sandra Harding touches on the subject of inclusivity in her essay from *The Feminist Philosophy Reader* titled "'Strong Objectivity' and Socially Situated Knowledge" where she delves into realitivism and its role in varying research endevors like modern science. She urges her readers to acknowledge that "it is not necessary to accept the idea that there is only one corret or reasonable way to think about [science and rationality], let alone that the correct way is the one used by dominant groups

in the modern West. Not all reason is white, masculinst, heterosexual, Western reason" (Hardings 102). In order to promote learning for all students from all backgrounds, teachers need to change the way they approach materials and the students themselves. The model that turns students into copies of each other does not promote education for all people.

bell hooks has been paving the way to enhance learning and education for all students and teachers. Called engaged pedagogy, her book *Teaching to Transgress*, zeroes in on how a more humanistic approach to learning can actually make learning deeper and more meaningful than a traditional "hands off" approach. She begins her first chapter by explaining that "to teach in a manner that respects and cares for the souls of our students is essential if we are to provide the necessary conditions where learning can most deeply and intimately begin" (hooks 13). First and foremost, a teacher should care about their students and acknowledge each one as a unique individual who has something of value to add to the conversation. By doing this, teachers begin the school year with more information than just their students' names and the way they look, and students begin the year knowing that the "authority figure" in the classroom cares enough to go beyond the basics. There is power in knowing your students more deeply, and that power leads to changes in the classroom that we need in this 21st century.

Getting to know your students sounds like a simple idea, but I have seen that it takes time to build that trust, just as it takes time to build trust between friends. In my first-ever PBL class, we spent time getting to know each other slowly. Some students take longer to open up and some take even longer to find the courage to share a piece of themselves with someone not meant to be in their lives for a while; however our professor was patient with us and supported her curiosity about our lives with pieces of information about her life. She had created a two-way street to

bridge the gap between student and professor. hooks too shared pieces of her life with her students in an effort to build trust. Throughout her life, she had experienced numerous obstacles and roadblocks as a woman of color. Instead of ignoring those facts about her life, she decided to share them openly with her students because bringing her authentic self to the table sets an example for them. One of her students felt the need to share this new-found openness and connection he had found with hooks with his entire campus. He detailed how he learned to connect with others he never thought he could connect with, how to identify himself in an ever-changing world, and how he learned that the world is really more about similarities than differences. Gary writes to his fellow classmates, "I did some of this learning by reading but most of it came from hanging out on the fringes of her life" (hooks 20). Her classes did not advertise the learning of these concepts nor did she use copious amounts of reading as a means of sharing them. Instead, she let her students into her heart and into her home. It was here, in that safe and companionable space, that her students found themselves learning more than the class had claimed to teach.

Constructing a two-way bridge supported by trust requires that the professor open up first. In typical classrooms or lecture halls, the professor holds the authority in the room, and the students are expected to listen and absorb as much knowledge as possible from them. Changing this dynamic requires the professor to acknowledge the power they have and decide what to do with it. When talking about her own classroom, hooks says "I do not expect students to take any risks that I would not take, to share in any way that I would not share" (hooks 21). Professors should not hold themselves above the students if they wish to create a safe and comfortable environment. They should be in the thick of the material with the students, learning and messing

up along with them. By doing this, professors can act as guides rather than all powerful knowers, and actually engage with all of their students.

Just as hooks shared herself with each of her students, so too did I find another professor that let us in. Finding one professor That same professor who helped me to see past the grades and the numbers did so because she let me into her life like no other professor had. I knew about her past, about her family, and about her struggles and triumphs. Her willingness to share pieces of herself with me made me willing to share pieces of ourselves with her. The act of opening up to her changed the class and eventually my life numerous ways. Going to class every day didn't feel like a chore. Reaching out for help with class material did not feel like setting up an anxiety-inducing meeting. My classmates and I put in more effort not out of fear of getting a bad grade but because we respected her and wanted to show her what we had learned. Numerous trips to her office helped me understand the material better than I had in any class before, but that would not have happened were it not for the trust she built with our class. Eventually, she became my advisor and helped me work through personal experiences and feelings that were affecting my schoolwork. I felt heard, valued, and respected by this person who technically was only supposed to teach me chemistry. She understood that her students had lives outside of the classroom and that more often than not those lives overlap. This understanding propelled me towards academic and personal success even after taking her class.

The ideas of compassion and connection in the classroom were not a part of my education until these very recent examples. I did not love any of my teachers, and I certainly did not love certain subjects in school. A teacher to many young students is just another authority figure to listen to, and these students already have parental authority figures, and their love for

them stems from years of care, attention, joy and laughter. Teachers were not trained or expected to fill that same mold, a loved authority figure. They were the keepers of knowledge, each one stationed at climbing intervals as gatekeepers. Through the eyes of bell hooks' student Gary, we can see that the way she runs her classrooms is much different than the status quo; however, she knows her teachings stay with her students more than those from traditional classrooms. No doubt her high levels of success stem from the love she holds for her students. The same way that the love from a mother or mother-like figure teaches newborns the way of the world, so does love and compassion from a professor or teacher expose young adult students to new ways of thinking and being. My encounters with compassionate professors and with hooks' work lead me to believe that a professor or teacher with true love for their students always comes with a desire to encourage their happiness. Caring for individual students as humans and as equals searching for a mentor, a teacher's primary focus becomes promoting individual happiness in each of their students.

iii. The School Assembly Line

Today, when we take a peek into a classroom, these caring, personal environments are few and far between. These days, school has taken on the dystopian feeling depicted in Tetsuya Ishdia's paintings titled *Seedlings, Exercise Man,* and many more[1] (Ishdia). In her book *The New Education*, Cathy Davidson offers extremely insightful commentary on India's paintings and his warning to the world about increasing focus on "workforce readiness" in higher education. His image *Exercise Man* shows a manager running on a treadmill made up of the limbs of his employees that are no longer arms and legs but the tread for the treadmill (Davidson 134). For

[1] See Appendix A for Images

Ishdia, his home country, Japan, had started to remove funding and importance from many higher education disciplines besides STEM focused ones. Davidson writes the Ishdia's images uncover how "college makes students 'work force ready' in the most cynical way: school trains students to march, automaton-like, passive and devoid of creativity, from the classroom to the workplace, with nothing vital or inspired anywhere in sight" (Davidson 133). This dark, shadowy vision of the world sounds like a consequence of Emerson's idea about the lack of creativity in learning. If students are turned into mindless copies of one another, the future does indeed look bleak. Ishdia hoped to warn other countries and future heads of education about the dangers of whittling education down into a machine for cranking out workforce employees. That is not a future world that most aspire to live in.

Davidson also dives into the formation and longevity of the current American university, more specifically the university devised and implemented by Charles Eliot. "Eliot and his peers from the nation's most distinguished institutions set about modernizing the university… to support a newly differentiated labor market", and to do this "they defined academic disciplines… regulated the curriculum, segregated general education and liberal arts from… graduate and professional schools… and founded ranking and accreditation organizations" (Davidson 3). This aimed to serve the growing prominence of the "emerging professional and managerial class" that had become a vital piece in the industrialization puzzle (Davidson 3). In our 21st century, everyone needs a job to provide for themselves and those close to them just as people did in the beginning of the industrialization age. At that time, Eliot's model of the university complemented the quicking evolving economy and world by preparing students to take part in it.

However, today, many educators and students have started to ask the question "to what extent does a job fit into a flourishing life?"

In Eliot's day and age, the fulfilment of his students was not high on his or his peers' priority lists, and instead, they placed the utmost importance on being able to join the world of the working. Still today, many might say a job holds an important if not the primary spot for fulfilment, and for that reason, many education systems tend to focus on giving students the tools to find and be successful at these jobs and not much more. In the book *Why Do We Educate?: Renewing the Conversation,* Brighouse starts his section titled "Education for a Flourishing Life" with a strong statement about a necessary shift in education's focus. In order to frame the phrase "flourishing life", the preface to his chapter uses examples of educational practices that do not promote this type of life. The editors includes "one of the more striking features of Western schooling in the last fifty years is the increasing focus of schools on preparing people to contribute to the national economy, often reducing the attention given to other educational aims" such as fulfilment or communication skills (Brighthouse 58) . Because of this goal of increasing our economy with every student that passes through the system, the government has created many standards and tests to ensure that the majority of students keep up with their timeline.

A means of keeping up with the timeline of the economy is not what students imagine school to be on their first day of kindergarten. Even college-aged students don't start their college career thinking "I cannot wait to graduate and be a productive member of the economy!" For most, continuing education provides the best chance at finding a career they are passionate about and honing their skills. That was my dream when I first arrived at DePauw, not to successfully become just another contributor to the economy. Brighthouse claims "if quality of

life is the reason that economic stability and growth matter, and growth does not systematically improve quality of life, then education should be guided not solely or primarily by economic considerations, but by the value of human flourishing" (Brighouse 60). At the outset of the article, Brighouse includes statistics taken from surveys on well-being in Japan before and after a 300% increase in GNP per capita. Those surveys did not show much of an increase in overall well-being. Brighouse makes a point that does not get discussed as much as it should. The economy keeps citizens funded for essential, society things that must be purchased. Once those needs are met, citizens are free to do what they wish with the money that remains, but as the survey of Japanese citizens and many other surveys show, self-reported well-being did not increase as the economy increased. The saying "money cannot buy happiness" seems to be true. If that is the case, then education for the sake of the economy does not provide the fulfilment required for a flourishing life. Again here, Davidson and Ishdia's depictions of education as an assembly line for the economy help with understanding how a sole focus on the economy turns individuals mindsets and the world as a whole into cloudy, dark places.

At this point, our conversation has brought us to a crossroads. Should education be used to continue economic prosperity, or should it be used to nurture the well-being and interests of the individual? The economy must continue to meet the basic needs of every country's citizens, but evidence from my experience and the experience I've found in numerous sources emphasizes, if not screams, that education must be more. Here is where project-based learning steps into the spotlight. Project-based learning works as a set of strategies that works alongside economic development to support both the individual and a nation. Instead of relying solely on numbers from various tests to determine a student's future, project-based learning allows for

creativity and exploration into topics students find most meaningful while still giving them the support they need to meet baseline standards. Davidson shares that "the methods we still use for evaluating student achievement were adopted from quantifiable measures of productivity developed for factories and the brand-new assembly lines" (Davidson 201). Factories and assembly lines were the peak of the nineteenth century economy. We are now well into the 21st century. There must be a way to marry economic prosperity and individual flourishing, and project-based learning might be just what we need. In a short piece titled "What Does It Mean to Be Well Educated?"Alfie Kohn quotes Nel Noddings writing "the main aim of education should be to produce competent, caring, loving, and lovable people" (Kohn 2). We need a system that nurtures children who, in turn, will provide the economy with the work it needs, but not at a detrimental loss of their individual happiness. Project-based learning sets the stage to achieve that goal, and for this reason, I knew I had to explore it for myself.

The driving force behind all of my research thus far stems from a curiosity I've harbored since the beginning of my only project-based learning class. What would my education look like if I'd started learning this way from the beginning? Who would I be if I had started learning not just as a piece of the economy puzzle, but as an individual with passions and dreams? It prompted me to look backwards into education to figure out what needs to be changed and forwards to the techniques we might need to make change happen. If someone asked me a few years ago why my education was valuable to me, I would have answered that my education exists to pass on ideas and skills necessary for entry into the working world, and that by following the rules and those simple guidelines, I would find happiness. Beyond that, I did not think about my education as anything more than a tool for finding a job in the realm of the

adults. Now, reflecting on those times and classes where I felt unique and heard, I realize that the best parts of my education happened in those moments. Special moments that occur daily in a project-based learning classroom. I needed to know what it was like to start the education journey in an environment that I had waited almost nineteen years for.

The Nature of This Project

Thus far, I have used both older and modern theory to have a conversation about education and how I have changed and grown with each unique educational experience. The techniques and strategies of project-based learning speak to the part of me that was longing for something more from my education. Because of the personal connection I have to this topic, I wanted to create something authentic and public to share with others who have felt this way or are searching for a kindred spirit. I didn't want this thesis to end up like so many that have come before me. Written for a grade only to be shelved for the very rare reader to stumble across. For me, that felt too similar to the feelings I already had in school - get the grades and get out, so I decided to start a blog. One that dove into some of the concepts I had found more deeply and a place to document my story for others to share in. I felt an urgency in my project, and I couldn't ignore it.

The realm of discussing education and its purpose is mostly filled with current teachers, professors, and administrators. They work together and have discussions about how they can change the face of education for the better. They too feel an urgency in their conversations because the way education works right now just doesn't cut it. Nell Noddings comments on the current state of education in a piece titled "The Aims of Education". He starts with a summary of the Platonian ways of education in which an individual must find that which they most enjoy and

focus solely on that job/passion throughout their lives for the betterment of the state (Noddings 334). In this case, the needs of the state are paramount, but by taking time to find each person's individual passion, both the individual and the state will be content. Noddings "limited parallels" between Plato's society and our society (Noddings 335). He mentions the development of standardized testing was "driven primarily by an aim to speak to the welfare of the nation" and not as a means of individualizing education for every student (Noddings 335). Many of the recent reforms in education have latched onto the idea of using schools as a system for creating the ideal American employee and rely on numbers and tests to evaluate the potential of each student (Davidson). They figure efficiency over true individual happiness better serves the needs of the state.

Because of this switch, more and more educators are joining together to find a way to revitalize our current education systems. Children and young adults are not happy. Just look at me. School was not a fun place to learn about my passions and my talents; it merely served as a stepping stone into a life I was supposed to have. The discontent was easy to push down for a long time because no one else was talking about it. Therefore, I must be crazy. Thinking about more, WANTING more from my education. It wasn't until someone told me that it could be different that started thinking about how. What it would look like and how it would feel. Because this project was born from a couple of genuine conversations, I knew it must be able to embody the vulnerability and authenticity that flowed through those conversations. It wasn't a book, a podcast or a video that gave me new ideas, but a few moments between people that felt real, raw, and honestly. So I would make a project that felt real and honest, and what better way to do that

than with a blog to share my story as it unfolded. In the next part of this account, I have referenced different posts from my blog that contain the real-time story of my experience.

Experiences In The Field

Besides finding connections between my thoughts and text or research , I needed to make my first project-based experience truly experiential - like I was a young student experiencing this new way of learning myself. Going into a classroom and working alongside students and teachers as they completed a project was vital to connecting the dots of all I had learned so far. I decided to partner with a teacher who just started working with the Castle. The Castle - also known as The Putnam County Coalition for Education and the Creative Arts - is a non for profit organization based in Putnam County, Indiana; their website contains information about their goals and the mission listed below ("The Mission").

> Through collaborative partnerships, teaching artists and volunteer efforts, The Castle offers free learning experiences in partner schools and in conjunction with community organizations that aim to maximize the opportunity for creative problem-solving, to enhance the curriculum, to nurture self-expression, to honor varied learning styles, and to encourage essential 21st Century skills.

Since publishing their mission, the Castle has shifted their focus to center on professional development in project-based learning rather than working directly in a certain school. This allows them to support individuals ready to make the change but are nervous to start on their own. Members of the Castle organized a year-long event called the Museum Project to spread their message and help teachers throughout Putnam County get started on practicing project-based learning in their classrooms. Students and their teachers were tasked with creating a museum exhibit for the Putnam County Museum's childrens' section. Teachers could have

their students create any type of exhibit from art to science to social studies making the possibilities endless.

My new partner is Courtenay, a second grade teacher at Ridpath Elementary which is situated right next to the DePauw Campus. Courtenay had been curious about trying project-based learning for a while and finally felt comfortable taking the leap with the Castle at her side. We met at Starbucks one chilly February day to start planning. At our first meeting, we focused on some of the biggest obstacles to overcome before diving into the logistics of the project. Our biggest concern arose from the age of her students. Being second graders, they were young and definitely not able to handle all of the power tools required to physically build an exhibit ("Starting my classroom experience"). All of the challenges associated with younger students and project-based learning rattled in my brain for a while after our meeting ended. Large scale projects with a younger class require more structure and organization than projects with older students, say undergraduates. We had reached a difficult obstacle already, and we just started!

To highlight the vast difference between elementary and undergraduate project-based learning, I'll use an example of my first (and only) undergraduate class that used a project-based learning approach. In my blog, I wrote a post titled "Nietzsche's Three Metamorphoses and an unexpected PBL class: How I Got to Where I am Now" that outlines the basics of the course and the experience I had learning about philosophy from a PBL standpoint. We too were charged with creating a project to display all we had learned with a greater community much like the Ridpath students' project. At first, "the thought of the thought of completing an ambiguous project was daunting for most of the class, but once we started reading and discussing, our minds

were changed completely." ("Nietzsche's three metamorphoses and an unexpected PBL class: how I got to where I am now"). In contrast, younger students never fail to provide a wealth of imagination and boundless energy from the start. For them, a limitless project and a blank canvas is not scary, but unbelievably exciting. The teacher, on the other hand, may feel that the flurry of ideas all at once seem like too much work and not enough practicality. In his book *PBL Structure and Stories: Wins, Fails, and Where to Start*, Ryan Steur compiles a list of step by step instructions for teachers new to project-based learning and pairs them with two stories - a project-based learning win and a project-based learning fail. In one of his fail stories, a new-to-PBL teacher "decided to take on world hunger with [her] learners" so she opened the floor and "waited for the magic to happen" (Steuer 18). Instead of magic, she discovered her students had little information about world hunger, and its effect everywhere in the world. Their ideas for helping were far beyond the capabilities of seven year olds, and the conversation only continued to spiral out of control. The teacher did not come into the brainstorming session with the questions necessary to guide the conversation and felt completely swallowed by young enthusiasm until she started to introduce feasible alternatives.

On the other hand, my class was filled with older undergraduates, and for many of us, we never had the freedom that we suddenly found ourselves with. At the beginning of the class, we found ourselves in riveting discussions every day that lead us to many revelations about the human condition and the power of thought. One would think all of these novel ideas would translate easily into a grand presentation for the community, but instead, we found ourselves stumped. Because of our age and our traditional, by-the-book education, we were painfully aware of our limitations. Limitations such as time, money, material, and man power. When

you're young, limitations never cross the mind. If the project requires building a flower garden like in another one of Steuer's examples, adding lights and bells and whistles are absolutely necessary. The money it would take to add those things? Doesn't matter. The time it will take to build? Doesn't matter. Without the limitation of envisioning limitations, younger students dream up projects that would be sure to blow the minds of their community partners; however, the absence of limitations is not reality, and older students are painfully aware of that fact.

As mentioned earlier, I often wonder now what that class would have been like if it wasn't my first experience with project-based learning. If I had started in a place that valued the individuality and creativity of younger students. A place like Southport elementary. My blog contains a series of posts about a visit I took to the elementary school where I got to see young project-based learning in action. As part of my experiential research, I wanted to see an elementary building completely run using project-based learning and what their day-to-day looked like. My favorite part of the tour by far was visiting their Project Lead The Way classroom that was run by a teacher with lots of previous project-based learning experience and knowledge. The students were working on coding a simple video game to play. Their game could be about anything they wanted, but they had "to have a storyline mapped out before the coding could even begin ("Southport Blog Part 2"). As I walked around the clustered desks, many of the students wanted to tell me about their game. A young girl explained that in her game, a bunny had to reach its carrot to win the level, but the presence of the big, bad dragon would make the game more challenging. Her eyes shone with excitement and expectation, and I realized how proud she was of her idea and how much she enjoyed sharing with those that would listen. I could envision her coding beautiful, complex games in the future, all because she was

given the chance to use her imagination. By the time she reached higher education, she would be there to make her dreams a reality, not trying to discover her passions for the first time.

If I had started project-based learning at a much younger age, would the class project still have seemed so scary or would it just be another challenge I had the tools to handle? What about projects and teamwork in the workforce? Would I be better prepared to contribute and create if I was given the chance to practice earlier? These questions fall among many I have had throughout this exploration of education and myself. Some I might never find the answer to, and I feel cheated.

Back to Courtenay's class project, she wanted to focus her class's project on science and hoped that project-based learning would help her students better understand the concepts required. At the beginning of the Castle Museum project, all of the participating teachers gathered at the museum with Castle board members for a briefing. Everyone in the group was new to project-based learning, so they gathered together to start their journey. At the first monthly meeting, I joined with everyone to hear how things were coming along. In my blog post "Working With The Castle: First Monthly Meeting", I outlined everything we talked about from project ideas to possible roadblocks. One of my favorite quotes from my partner was to "let them stumble" (referring to the students) throughout the creation portion of the project. Giving them the ability to create drafts and design ideas on their own from the beginning helps foster autonomy in younger students. Courtenay and I really wanted to see what things her students could come up with and then walk through options and limitations with them. Hopefully, by letting them have a large amount of input, they would feel as though their thoughts are valid and important while also teaching them lessons along the lines of practicality and collaboration.

Project-based learning provides a framework for encouraging imagination and creativity in the classroom for students and teachers alike. The Castle implemented the museum project as a way to spread the joys of project-based learning with teachers in their immediate areas. Project-based learning is one way that educators throughout the country have started to push back against the reforms that squandered imagination. Henry Giroux refers to those recent school reforms as extremely problematic and explains how "they kill the imagination of teachers and students by confusing education with training and teaching with mind-numbing instrumental practice" (Giroux 491). The teachers who joined the Castle's museum project came on board with the expectations of finding another way to teach, a way that didn't stifle creativity in the classroom. The act of coming together with other teachers made it feel like we were part of a project-based learning ourselves. Having a group of like minded individuals made it easier to identify possible obstacles and navigate new areas of teaching.

One of the most foreign pieces that come with project-based learning is the inclusion of a community partner in your projects. Finding a community partner with a vested interest in helping students can be a challenge. Many of them believe that teachers or a school building are only looking for money to help fund new projects in that company's name. In fact, that is far from the truth. The inclusion of the community partner enhances the authenticity of the project and shows the students that adults outside of the classroom value their ideas and want their help. Trisha Burns, a Middle School PBL Facilitator with MagnifyLearning, uses her connections with community partners to help her students "understand, that whether big or small, their impact on the community can create positive change...even if it is for just one family or person" and also because having authentic "community partners helps students get ideas on careers or volunteer

opportunities that they didn't realize were available" (Burns). It gets younger students thinking about the potential they have to make changes in their world - big or small. They feel heard, valued, and important, feelings that traditional classrooms typically do not provide. While many teachers are extremely kind and encouraging, it doesn't change the fact that most of their students' schoolwork does not connect with the community outside of the classroom.

At the kick-off meeting for the museum project, Courtenay met with a community partner from Spear Corporation in Roachdale, IN who was extremely excited about the prospect of working with her students. Spear Corporation is a locally owned business that specializes in large-scale aquatics construction and maintenance. In my blog post "Meeting With Our Community Partner", I included the details of our first meeting with Tim Smith, a member of the Spear Corp family. Immediately Tim "mentioned his excitement and the excitement of his company for being a community partner and listed loads of things the company could do/provide", and we knew that he was in it for the right reasons ("Meeting With Our Community Partner"). Community partners should donate ideas and enthusiasm, not money, and Tim was ready to bring even more than that to the table. We had all just sat down and got to talking when he pitched an idea for more classroom interaction with Courtenay's class. He wanted to be a part of the project for more than just the launch event where the students learn about the project for the first time. He wanted to be present and helpful to students, not just a stranger who needed help or was providing supplies for a project.

He would start work right away and have his engineers design an example blueprint for an olympic-sized swimming pool. They planned to bring in a blueprint and a mini model, so the students could see what happens at work when they are given a project. After showing the

students their examples, it's time for the students to get creative. By including them in a piece of their profession, the students would gain an understanding of designing an "adult" project while having the ability to make it their own. Tim also invited the class to come on a field trip to their facility. Sharing his space with the students was his way of letting them know they are just as capable of learning and appreciating everything Tim and his team does. We invited Joel, a seasoned videographer and close contact of the Castle, to join the field trip to gather some footage. Along with creating an amazing exhibit, Courtenay and I had even bigger dreams for this project. We wanted the community to see just how wonderful the entire journey would be. Starting with the field trip, we planned to have Joel present at all of the important milestones of the project: the launch party, the meetings with Tim, some of the days spent planning, and any other important aspect up until the reveal at the museum. The video would be set up next to the student's exhibit to give visitors a chance to experience project-based learning from beginning to end.

I tagged along on the students' adventure to Spear Corporation and documented the trip on another blog post titled "A Trip to the Pool: Well Almost a Pool!". All of the employees were ecstatic to have the students in their office, and they set up demos and a tour of everything they had to offer. This was the first time I met the students of Courtenay's class, and I could feel the excitement in the air. Courtenay and I weren't sure at first how engaged the students would be since it was their first time on this type of field trip: one where they would take home what they learned and apply it to a large-scale project. We were blown away by the flood of questions that came from even her most quiet students. They listened intently to the presentation and stared at all of the large machinery and equipment with awe. Astonished by all of the great questions, Tim

almost didn't have time to answer them all; however, their favorite part of the tour started in the warehouse. Employees at Spear Corporation built a special room in their warehouse for testing new products and problem-solving different problems that may have arisen at their clients' pools ("A Trip to the Pool: Well Almost a Pool!"). Their lead technician emphasized how important practice and problem-solving are once you have a job. This got the students even more excited to start problem-solving on their own projects, and they couldn't wait to share with Tim what they would come up with.

Heading out the door, Courtenay told me how excited she was for our next meeting because our field trip had given her and her students so many ideas for the project. We agreed to meet one more time and then have the launch event at school. Unfortunately, we were never able to reach that stage.

Imagining the Final Product

On March 12th, 2020, DePauw University closed its doors and sent everyone home due to the coronavirus outbreak that had taken over the nation. The Greencastle schools closed shortly after, and our project was officially over. For the rest of my project, I hope to piece together what I imagine how the rest of the project would have gone based on my experiences thus far. One of my favorite sources for quick information and inspiration through this project has been MagnifyLearning. To imagine what the rest of our experience would have been like, I will be using their adaptation of the 6 A's Project Design Rubric created by Adira Steinberg available on their website[2]. Courtenay had acquired a copy of the checklist at the initial meeting with the Castle, and while teachers were not required to follow this rubric, it provides a clear,

[2] See Appendix B for Rubric

concise map from beginning to end of a project including different levels of meeting each standard. When evaluating the various components of a PBL unit, the rubric gives criteria for unsatisfactory, basic, and exemplary details of the unit.

Authenticity occupies the first spot on the rubric, and our next phase started with a launch event for the students. At this event, Tim and I were going into the classroom, and Tim would pitch the exhibit project to the students. Steuer emphasizes how important "the presence of a community partner" can be because it "shows that the work your learners are creating is worth showing up for" and changes the entire dynamic of a class project (Steuer 77). Getting a project from your teacher just feels like another normal day at school, and just another project to get graded on. Having a member from the community come into the classroom with a problem feels more authentic even to younger students. This new person has come to your classroom because they feel that you and your classmates have the ability to solve their very, real-world problem. By posing a problem that "adults in the 'real world' are likely to tackle" and "has meaning to the students", we successfully perfused the project with sufficient authenticity to engage the students (Steinberg). We had already seen successful engagement at the Spear Corporation, so the launch party was set up to be a huge success.

The center of a project-based learning launch party must be a driving question that guides the class for the duration of the unit. Such a question falls under the Academic Rigor section on the rubric because crafting a strong driving question can ensure state standards are being met and that students are engaging in a variety of "new habits of mind" (Steinberg). While the section on standards meeting does not directly involve the students, it helps keep teachers on track for meeting standards that still exist in each state. At our next meeting, Courtenay, Tim and I wanted

to draft the driving question along with the launch party itinerary to get everything off on the right foot. Tim would kick off the project with a presentation of the problem and the driving question, and Courtenay would guide the initial discussion to ensure the students came up with plausible solutions. Following the driving question, the floor would be opened to the students to start the ball rolling.

Once the launch party has kicked off the project, keeping the project organized and meaningful throughout the process becomes the next biggest challenge. Three of the rubric components are most relevant in the midst of all of the planning and managing. Applied learning, active exploration, and adult connections turn a mediocre project into an outstanding one. Applied learning ensures that students acquire new knowledge necessary to complete the task and that they develop a plethora of skills pertinent to the task at hand and in the "real world". The rubric includes standards for practicing "work-organization skills" and "self-management skills" throughout the process as these skills help better prepare younger students for the expectations of the workplace (Steinberg). Tim and his engineering team were prepared to organize multiple workshops and examples for the students while Courtenay started to set aside time for learning the science behind water composition and movement. At this point, state-standards can be considered and met by incorporating mandatory lessons from the classroom into the project, so each day at school feels meaningful, not just the time set aside for the project. Active exploration also plays into the authenticity of the project as students should be able to "do field-based activities" and "gather information from a variety of primary sources" through their research period (Steinberg). Courtenay had already brought the students to Spear Corporation to actually see the field which laid the foundation for authentic, enthusiastic learning

(Steinberg). Tim's presence at the launch event and at various times during the research period would provide another source of knowledge for active exploration and meets the requirement for adult connection.

Adult connection may be the most important criteria for making a PBL as authentic as possible. I've already mentioned the role of a community partner numerous times, and again, having a strong community partner can work wonders during the construction phase. The rubric recommends having adult connections readily available for the students "who have expertise and experience and who can ask questions, provide feedback, and offer advice" (Steinberg). With Tim spearheading our community partnership, the students would have had no trouble at all using him as a resource for information or even more contacts to help the project along. Our adult contact also would offer support to Courtenay's students by donating supplies and manpower to assemble certain pieces that little hands are not capable of, and "he suggested that his team could build the bare bones ... to bring into the classroom, so the students have the opportunity to add pieces to the table later on" ("Meeting With Our Community Partner"). Tim and his team were prepared to help the students in any way possible, and this is what would make our project the biggest success it could be.

Last but not least on the rubric lies the section on assessment practices. This piece is crucial for awarding students merits based on what they have learned and how they have contributed to the project as a whole. With current events happening, I'm not quite sure how Courtenay would have guided her students through assessments; however, this rubric does include that "the final product is a culminating exhibition or presentation in front of an informed audience" (Steinberg). This final piece had already been planned by the Castle as the students

needed to assemble something to share with all of the patrons visiting the Putnam County Museum. Unfortunately, we never got the chance to build an exhibit and show the community just how special project based learning can be.

Closing Remarks

Over this past year, I spent more time than I ever had before questioning my education and searching for a way to enhance learning for students everywhere. All of my searching led me into the arms of project-based learning. Instead of solely focusing on books and papers on the subject, I decided to create a project that allowed me to experience all of the joys of project-based learning, in true Emerson and project-based learning fashion. Nothing beats the chance to actively participate in that which you desire to learn more about.

The sweep of COVID-19 around the world sadly halted my journey right before I got to see the magic. From all of the stories I've read and heard, watching students come together with boundless energy and imagination makes all of the planning and organizing more than worth it. Based on the time I had before I left campus, and all of the progress we had already made, I know that this project would have inspired many throughout Putnam County.

References

Brighthouse, H. (2009). Education for a Flourishing Life. In *Why Do We Educate? : Renewing the Conversation* (pp. 58–71). Hoboken, NJ: Wiley-Blackwell.

Burns, T. (2019, March 11). Community Partners and Project-Based Learning. Retrieved April 10, 2020, from https://www.magnifylearningin.org/project-based-learning-blog/community-partners-and-project-based-learning

Davidson, C. N. (2017). *The New Education: How to Revolutionize the University to Prepare Students for a World in Flux* (1st ed.). New York, IL: Basic Books.

Dewey, J. (1897). My Pedagogic Creed. *School Journal*, *54*, 77–80.

Education. (n.d.). Retrieved February 17, 2020, from https://www.merriam-webster.com/dictionary/education

Emerson, R. W. (1837, August). Cambridge.

Giroux, H. (2011). The Promise of Critical Pedagogy in the Age of Globalization. In *On Critical Pedagogy* (pp. 69–85). New York, NY: Continuum International Publishing Group.

Harding, S. (2007). Strong Objectivity and Socially Situated Knowledge. In *The Feminist Philosophy Reader* (pp. 89–104). Boston, MA: McGraw Hill.

hooks, bell. (1994). Engaged Pedagogy. In *Teaching to Transgress* (pp. 13–22). London: Routledge.

Ishdia, T. (1998). Retrieved from https://artjouer.wordpress.com/2015/10/29/tetsuya-ishida-paintings/

Ishdia, T. (n.d.). Hong Kong. Retrieved from https://www.artforum.com/picks/gagosian-gallery-hong-kong-44199

Kelly, S. (2020, March 8). A trip to the pool (well almost a pool!). *An Exploration into PBL By a Curious Undergraduate.* https://www.hastac.org/blogs/sarkel43/2020/03/08/trip-pool-well-almost-pool

Kelly, S. (2020, February 4). Meeting with our community partner. *An Exploration into PBL By a Curious Undergraduate.* https://www.hastac.org/blogs/sarkel43/2020/02/04/meeting-our-community-partner

Kelly, S. (2020, March 4). Nietzsche's three metamorphoses and an unexpected PBL class: how I got to where I am now. *An Exploration into PBL By a Curious Undergraduate.* https://www.hastac.org/blogs/sarkel43/2020/03/04/nietzsches-three-metamorphoses-and-unexpected-pbl-class-how-i-got-where-i

Kelly, S. (2019, November 18). Starting my classroom experience. *An Exploration into PBL By a Curious Undergraduate.* https://www.hastac.org/blogs/sarkel43/2019/11/18/starting-my-classroom-experience

Kelly, S. (2020, February 21). The power of a simple math problem: part two of my visit to Southport elementary. *An Exploration into PBL By a Curious Undergraduate.* https://www.hastac.org/blogs/sarkel43/2020/02/21/power-simple-math-problem-part-two-my-visit-southport-elementary

Kelly, S. (2019, December 5). Working with the castle: first monthly meeting. *An Exploration into PBL By a Curious Undergraduate.* https://www.hastac.org/blogs/sarkel43/2019/12/05/working-castle-first-monthly-meeting

Kohn, A. (2004). *What does it mean to be well educated? and more essays on standards, grading, and other follies*. Boston, MA: Beacon Press.

Martin, J. R. (2007). Rereading the Pygmalion Myth. In *Educational Metamorphoses* (pp. 5–25). Lanham: Rowman and Littlefield.

The Mission. (n.d.). Retrieved April 9, 2020, from https://www.castlearts.org/copy-of-our-vision

Steinberg, A. (1997). The Six A's of Designing Projects. In *Real Learning, Real Work*. New York, NY: Routledge.

Steuer, R. (2018). Pbl structure and stories: wins, fails, and where to start / Ryan Steuer. Indianapolis: Magnify Learning, Inc.

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Appendix A

Seedlings by Tetsuya Ishdia

Exercise Man by Tetsuya Ishdia

Appendix B

SIX A's PROJECT DESIGN RUBRIC

	UNSATISFACTORY	BASIC	EXEMPLARY
Authenticity	▪ The project has little or no connection with the outside world. ▪ The problem or question has little or no meaning to the students. ▪ There is no audience for the student work.	▪ The project simulates "real world" activities. ▪ The problem or question has meaning to the students. ▪ There is an appropriate audience for the student work.	▪ Adults in the "real world" are likely to tackle the problem addressed by the project. ▪ The problem or question has meaning to the students. ▪ There is an external audience for the student work.
Academic Rigor	▪ The Driving Question is not based on standards. ▪ The project demands little specific knowledge of central concepts. ▪ Students can complete the project without learning new content. ▪ Project does not include habits of mind in outcomes.	▪ The Driving Question is based on standards. ▪ The project demands specific knowledge of central concepts. ▪ Students learn minimal content. ▪ Project reinforces previously learned habits of mind.	▪ There is a well-defined and clear Driving Question that is derived from specific national, state, district, or school content standards. ▪ The project demands breadth and depth of specific knowledge of central concepts. ▪ Students develop new habits of mind (e.g., questioning; precision of language and thought; persistence).
Applied Learning	▪ Students do not apply new knowledge to a problem. ▪ Students are not required to develop collaborative or teamwork skills.	▪ Students apply new knowledge to a problem. ▪ Students are required to work in teams. ▪ Students use self-management skills to improve their performance.	▪ Students apply new knowledge to a realistic and complex problem. ▪ Students use multiple high-performance work organization skills (e.g., working in teams; using technology appropriately; communicating ideas; collecting, organizing, and analyzing information). ▪ Students formally use self-management skills (e.g., developing a work plan, prioritizing pieces of work, meeting deadlines) to improve their team's performance.
Active Exploration	▪ No research is required. ▪ Students gather information from textbooks or other secondary sources. ▪ Students use raw data provided by the teacher.	▪ Students conduct their own research. ▪ Students gather information from a limited number of primary sources.	▪ Students do field-based activities (e.g., interviewing experts, surveying groups of people, exploring worksites). ▪ Students gather information from a variety of primary sources and use a variety of methods (interviewing and observing, collecting data, model-building, using on-line services).
Adult Connections	▪ Students have no contacts with adults outside of school.	▪ Students have limited contacts with adults outside of school (e.g., guest speakers). ▪ The teacher uses role-playing or other staff members to simulate "expert" contact.	▪ Students have multiple contacts with adults outside of school who have expertise and experience and who can ask questions, provide feedback, and offer advice. ▪ Students have the opportunity to observe and work alongside adults in a worksite relevant to the project. ▪ Adults outside of school provide students with a sense of the real-world standards for this type of work.
Assessment Practices	▪ Students are not provided with explanation of the assessment at early stages of the assignment. ▪ The only product is a culminating exhibition or presentation.	▪ Students are provided with a clear explanation of the assessment in the early stages of this assignment. ▪ Students receive infrequent feedback on their works-in-progress from teachers, mentors, and peers. ▪ The project includes multiple products. ▪ The final product is a culminating exhibition or presentation that demonstrates their ability to apply the knowledge they have gained.	▪ Students help in establishing assessment criteria. ▪ Students use a variety of structured self-assessments (journals, peer conferences, conferences, rubrics). Students receive frequent and timely feedback on their works-in-progress from teachers, mentors, and peers. ▪ The final product is a culminating exhibition or presentation in front of an informed audience. ▪ The project employs multiple products, and all products are aligned with outcomes.

Six A's of Project Design by Adria Steinberg adapted by MagnifyLearning