7.1 WORK IN PROGRESS | RESEARCH INSIGHTS

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REVISED TFI

MOTIVATE CREATIVE THINKING SKILLS WITHIN THE CLASSROOM

FACT:

Currently there is no emphasis on the importance of teaching the design process in high schools in America.

PROBLEM:

In high school core classes the design process is not being utilized and as a result students are lacking the skills to really delve into subject matter and problem-solve more creative solutions.

OUTCOME:

I will create design process curriculum for core subjects areas for high school students to better their creative problem solving skills.

TOPIC STATEMENT

We need to motivate creative thinking skills in our schools. Currently there is no emphasis on the importance of teaching the design process in high schools in America. The design process could be utilized in core curriculum classes improving students creative problem-solving abilities. Creating design process oriented curriculum for core subject matter in high schools will help students better understand the process of problem solving.

AUDIENCE STATEMENT

The target audience for my thesis project are high school teachers, specifically teaching non design related classes. My secondary audience is the students because they will be able to utilize the content through their teachers lessons. Stakeholders would be the administration, school board and super intendents, since they decide whether things are approved and could potentially shut down the project.

2.1 GAPS AND OPPORTUNITIES

Quote:

“Regardless of problem size, the design thinking process has many opportunities for learning embedded into it, including: how to define a particular problem, understand needs and constraints, brainstorm ideas and possible solutions, and how to gather and incorporate feedback. “

Insight:

When students can see that they can solve problems using a series of steps. Their confidence will grow, therefore making them more likely to do things on their own and problem solve for a solution.

https://teacher-blog.education.com/how-to-use-design-thinking-in-the-classroom-to-build-problem-solving-skills-c42bdfa95ccd

2.1 GAPS AND OPPORTUNITIES

Quote:

“In order to solve a problem designers need to understand it. Sometimes what is presented and described as the problem actually is not. Designers must learn to figure out (evaluate) for themselves (and their clients) what the root problem is and then proceed to solve it. “

Insight:

Nice guide for use with high school students. However, most of my students are just interested in trying out graphic design. What about the students who want to pursue other career paths. How do I make content for them that they can relate back to a subject area they will be pursuing. Or how can it relate to other subject areas, for use in other classes?

https://www.aiga.org/resources/academic-design-education/graphic-design-curriculum

2.1 GAPS AND OPPORTUNITIES

Quote:

"In our classroom, we started a design thinking workshop where students started with lists of problems that they wanted to solve. As students worked on designing apps to solve some of these problems, they interviewed each other, sketched designs on index cards, and "tested" the usability and effect of their ideas."

Insight:

Encourages deep problem solving with design thinking, in all subject areas. Created a workshop in their class to learn how to do this, started students as young as third grade. Gives instructions on how to teach design thinking in all subject areas. Interesting, could give more specifics for specific subject matter. But very helpful information.

https://www.commonsense.org/education/articles/8-steps-to-implementing-design-thinking-in-your-classroom

2.1 GAPS AND OPPORTUNITIES

Quote:

"Some are true problems that need to be solved, such as how to safely filter water samples. Others focus on improving an existing design, such as building a device that allows students to flip a light switch from across the room. A handful are more conceptual in nature. For example, students would not be expected to design an actual dam and experiment with water flow to observe effects on the environment. The purpose of activities such as these is to help students understand some basic design concepts and apply those concepts to different problems or tasks."

Insight:

Breaks down how to incorporate the design process into science. A step by step process that is broken down so that it really could fit any project or subject matter. It even has a rubric.

https://www.cosa.k12.or.us/sites/default/files/images/9-12_design_process.pdf

2.1 GAPS AND OPPORTUNITIES

Quote:

"In everyday life and in special projects, we often solve problems (in our efforts to make things better) by using a process of design. We use design when our objective is to improve a product, activity, strategy, or theory, which includes almost everything we do in life. This wide scope of design gives teachers flexibility, because they can use many types of design activities (spanning a wide variety of areas and a wide range of difficulty) to help students develop their creative-and-critical thinking skills."

Insight:

Speaks of the importance of problem solving. Many students today don't understand how to problem solve, I spend most of my day running around helping kids because they pressed the wrong button in Photoshop, can't figure out why their camera is taking dark pictures, etc. Teaching problem solving skills in the form of the design process will give them the skills they need to solve problems and answer the questions needed to solve those problems.

https://www.asa3.org/ASA/education/think/intro.htm

2.1 GAPS AND OPPORTUNITIES

Quote:

“In Design Thinking, they are discovering knowledge through exploration. Students help define the problems, identify and develop potential solutions, and determine ways to assess the work. Instructors serve as facilitators and advisors to this learning.“

Insight:

In every class project you are solving some sort of problem, teaching them the same skills in order to create cohesion. No two teachers are a like, nor the way they teach, might be beneficial to keep a similar structure for problem solving.

https://www.celt.iastate.edu/instructional-strategies/teaching-strategies/design-thinking/

2.1 GAPS AND OPPORTUNITIES

Quote:

"Integrating the Arts with Other Subjects combines the creative engagement of arts activities with content from other subject areas, such as math, science, language arts, social studies, and technology. There are many ways to integrate the arts with specific content areas. Begin by connecting with school-day teachers to find out what themes students are studying in different classes."

Insight:

Talks about incorporating art into other subject areas, making things for visual for students. Bringing it into core subject areas, which creates new opportunities for learning. Emphasizes problem solving skills. Easier to teach design process when there is a project involved. How do we get kids to care about the projects and learning that are happening?

https://y4y.ed.gov/toolkits/afterschool/arts/integrating-the-arts-with-other-subjects

2.1 INSIGHTS FROM READING

Quote:

"Its purpose is to provide all professionals with a standardized innovation process to develop creative solutions to problems—design-related or not."

Insight 1:

There are quite a few schools who have adapted some form of design skills within their schools. However, it is mostly overseas.

Insight 2:

In the United States this idea of teaching design skills has become popular but, hasn't been used with much success. Shouldn't we be preparing students to solve meaningful challenges and the skills they will need for future jobs? Making the design process a part of every class will help students practice these skills and learn how to use them in all situations within their lives.

https://online.hbs.edu/blog/post/what-is-design-thinking

2.1 INSIGHTS FROM WATCHING

Quote:

"When students are exposed to design thinking at such an early age their creativity has blossomed, and they can think outside the box. They also feel like there's not a problem out there they cannot devise a solution for.

Insight 1:

Students are learning valuable skills that will help them throughout their lives. They are learning goal setting, problem solving, and perserverence.

Insight 2:

Helps students understand real world problems. Something they can relate to, and better emphasize with others.

https://www.edutopia.org/video/design-thinking-problem-solving-framework

3.1 INSIGHTS FROM CONNECTIONS

Quote:

“The American school system is fully decentralized. It is up to each state to make decisions concerning the programs, the manuals, the distribution, and the amount of the expenditure, resulting in great disparities and great flexibility. Thus, concerning the program, for example, publishers use only national goals to create their textbooks. Only twenty-two states publish a list of recommended textbooks; in most states, freedom of choice is total.”

Insight 1:

If teachers/adults don’t understand the importance in these areas of studies no wonder the students don’t see the importance of them.

https://www.livepositively.com/what-characterizes-the-american-education-system/

3.1 INSIGHTS FROM CONNECTIONS

Quote:

"Meanwhile, employers say many students graduate unprepared for successfully starting their careers, leaving companies scrambling to find workers who possess the kinds of skills that are most in demand in an increasingly digital economy."

Insight 2:

Creating understanding in skills that will make you workforce ready.

https://www.highereddive.com/news/skills-based-learning-is-the-key-to-improving-roi-in-education/630896/

3.1 INSIGHTS FROM COMPETITIVE ANALYSIS

Quote:

"Reframing" the classic design process and structuring it around the pillars of your project is helpful. Once you reframe the design process you can see how it can allow you to create with more freedom. Then, discover how you can apply this design process to other practices."

Insight 1:

Incorporate the design process into core subjects to improve problem solving ability.

https://www.domestika.org/en/courses/2172-hands-on-design-reinvent-your-creative-process

3.1 INSIGHTS FROM COMPETITIVE ANALYSIS

Quote:

“There are people who have dabbled with the idea of teaching design thinking skills within schools. But they haven’t created curriculum that aligns with all subject matter effectively. Creating it to be used throughout all subjects would create a more well rounded system. If the students are getting it in every class they are more likely to understand, catch on and utilize these techniques. Then they will begin to see the connections.”

Insight 2:

Making connections between other classes and how design skills could be used to benefit them with other class projects and in the real world.

https://www.aiga.org/sites/default/files/2021-02/introduction-to-design-futures.pdf

3.1 INSIGHTS FROM THOUGHT LEADERS

Quote:

"The CAT distills design-thinking down to essential building blocks. The result is a stand-alone resource designed to lead anyone, anywhere through the problem-solving process, to any problem, any time."

Insight 1:

Have created a dynamic problem solving method, broken down into a step-by-step process. Making it easy to impliment and easy for clients to follow and understand.

https://www.frog.co/designmind/collective-action-toolkit-empowering-communities?redirectbrand=frogdesign

3.1 INSIGHTS FROM THOUGHT LEADERS

Quote:

"Classrooms and schools across the world are facing design challenges every single day, from teacher feedback systems to daily schedules. Wherever they fall on the spectrum of scale – the challenges educators are confronted with are real, complex, and varied. And as such, they require new perspectives, new tools, and new approaches. Design thinking is one of them."

Insight 2:

Create activities for students to create and problem solve, to learn the design process.

https://www.ideo.com/post/design-thinking-for-educators

3.1 INSIGHTS FROM QUANTITATIVE DATA

Quote:

"The strength of the American economy does not rest on its manufacturing prowess, its natural resources, or the size of its market. It turns on one factor—the country's openness to new ideas, which has allowed it to attract the brightest minds from around the world and harness their creative energies."

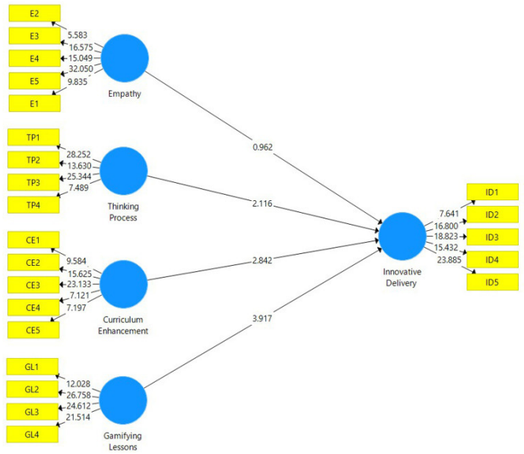
Insight 1:

A need to spark the creative problem solving skills of future generations.

https://www.ideo.com/post/design-thinking-for-educators

3.1 INSIGHTS FROM QUANTITATIVE DATA

Data:



Insight 2:

Design thinking affects the learning experience of the students, leading evolution and innovation in delivering dry and boring subject matter.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8753572/

3.1 INSIGHTS FROM WILDCARDS

Quote:

"How can students see how group work, and relying on others with the skills they need to get the job done. Seeing connections between all classes and the skills you acquire from each working together."

Insight 1:

Innovation of creative thinking when students are able to make connections with problem solving skills, and utilize resources.

https://contrib.pbslearningmedia.org/WGBH/conv18/adptech12_int_idsprocess/index.html

3.1 INSIGHTS FROM WILDCARDS

Quote:

" The instructional goal of the project was to use design thinking to teach students about systems, an important element of geography. The students worked in teams through the design process to identify and redesign systems that existed at their school, such as the parking lot or the cafeteria."

Insight 2:

Design thinking can be used in any content area or setting to increase problem solving skills, human centeredness, and collaboration.

https://www.degruyter.com/document/doi/10.1515/edu-2019-0022/html?lang=en

4.1 LAB 1 - INSIGHTS FROM QUESTIONS

Question 1:
We could assume instead that if teachers focused on how design skills could be used to make them workforce ready, that students would be more likely to see their value.

Insight:
Project-based learning helps students retain information more efficiently. What kinds of projects would the students be interested in?

Question 2:
Assuming a stronger focus on design process supports students with different backgrounds and skill levels.

Insight:
English language learners have an easier time following along and understanding content with skill based learning.

Question 3:
What other information is needed to create curriculum for core subject matter based around the design process for high school students?

Insight:
Students learn how to visually communicate information, which could be used in presentations and other projects in various subject matter.

Question 4:
How would other groups outside of the education system respond to using the design process help with a career and personal development?

Insight:
The general population places majority of educations worth on core subject areas, when design can incorporate these skills collectively. Design a website where teachers can go to to get leasson plans and content for class.

Question 5:
But if that happened, would students be able to handle all of that information? Would it be better if it was simplified? What would the effect of simplification have on students?

Insight:
Breaking down content into digestable chunks help students learn processes better. Design videos and posters to use in classrooms as a guide for students to reference and learn from.

Question 6:
What is the alternative to having a graphic design program with no one qualified to teach it?

Insight:
Creating content for everyone so whether you have a sub, new hire, or someone who knows nothing about the content can follow along and students will still gain skills.

6.1 LAB 3 - INSIGHTS FROM FOCUS GROUP

Quote:

"Talk about imagery and what you picture when you read something. Some people can't do this so I have the students help others with visualization. They need to understand their audience these are students that struggle with reading so make it something they can understand" – Nicole, age 50

Insight 1:

Teaching the design process in classes with struggling students would create a visual level of learning to help those who are hands on and visual learners.

6.1 LAB 3 - INSIGHTS FROM FOCUS GROUP

Quote:

"Students don't want to explore and research things to gain a better understanding of content. I agree they just want the answers which they forget 2 minutes after I tell them."
– Luke, age 30

Insight 2:

Teaching the design process would put the learning back into the hands of the students. Learning a process where they can come up with the answer themselves.

6.1 LAB 3 - INSIGHTS FROM FOCUS GROUP

Quote:

“They are scared to try new things.” - Luke, age 30
“They are scared to fail.”– Elizabeth, age 41
“When things are deemed by the students to be too hard, they shut down and stop trying.” – Luke, age 30

Insight 3:

Students need to be taught how to succeed and that is okay to fail, in order to create confidence in learning.

6.1 LAB 3 - INSIGHTS FROM FOCUS GROUP

Quote:

"Maybe the students have never been taught how to problem solve. This might sound silly but they just might not understand where to begin." – Luke, age 30

Insight 4:

Giving the students a step-by-step process to follow, so they know where to start and where to go will give them a better framework of understanding.

6.1 LAB 3 - INSIGHTS FROM FOCUS GROUP

Quote:

“Who’s job was it to teach them these skills in the first place? Which grade level? Because this is not my job, my job is to teach them Spanish.” – Luke, age 30

“But if they don’t have the skills to problem-solve, how do they go about learning new skills like speaking another language?” – Nicole, age 50

Insight 5:

Learning these skills might have been useful when students were in grade school. But it’s not too late to incorporate them into subject matter now, there just needs to be consistency.

6.1 LAB 3 - INSIGHTS FROM FOCUS GROUP

Quote:
“Kids are great about helping each other. So how could we implement this better as a process to help with motivation and problem-solving?” - Nicole, age 50

Insight 6:
Teaching the design process in core content area would help students work together towards a common goal.

Influence

1

THE OLD SCHOOL GRANDPA

Gender: Male
Age: 80
Income: Retired, collecting retirement
Education: Bachelor of science in education

Specific Traits:

1. Worked as a middle school math teacher from his graduation from college until he retired at 70.
2. Doesn't believe in technology. A pencil and paper will get the job done more efficiently.
3. He spends a lot of time with his grandson, who is very technology centered. Which upsets him.
4. His grandson has shown him some things on his computer. Even though he won't admit it he was impressed and could see it potential.

Statement:

As a grandparent of a teenager I understand the potential for technology to be a resource. However, I am very concerned about how teenagers are using the technology and how everything is at their fingertips. I would be interested in learning ways to use technology in a more meaningful way. Maybe I can teach my grandson how to use technology as a learning tool rather than just a waste of time.

Influence

2

THE DECA PRESIDENT

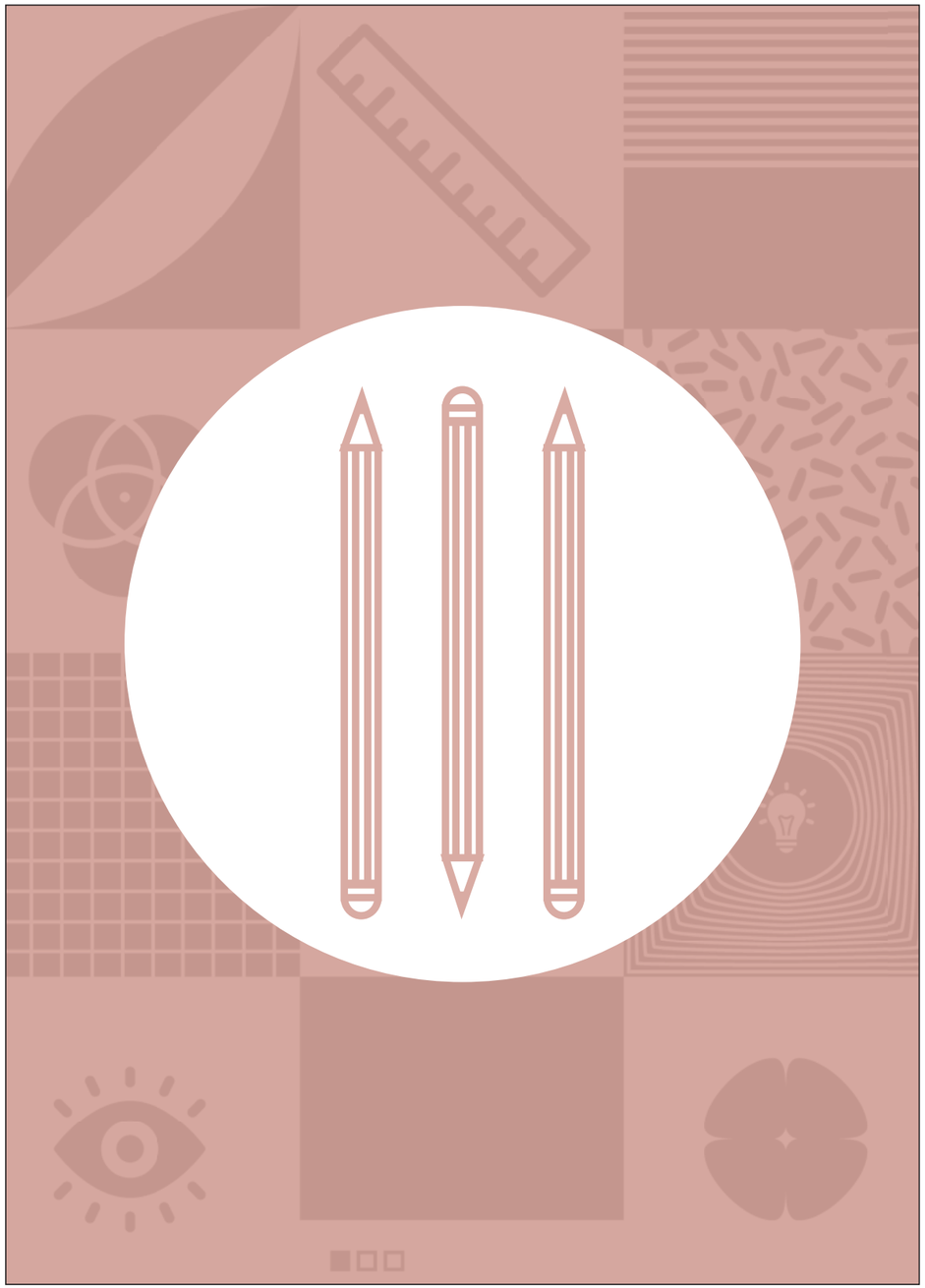
Gender: Male
Age: 16
Income: $0
Education: Sophmore in high school

Specific Traits:

1. Is in his sophmore year of high school. Where he is very involved in business classes and is the president of DECA.
2. His favorite class this year is marketing where students get to design a product and sell it to their fellow students and faculty.
3. He is most likely going to pursue a degree in business marketing when he is finished with high school.
4. He is deciding on what classes he would like to take as a junior. He thinks that graphic design might be a good fit for his interest in marketing.

Statement:

As a junior in highschool I understand that I have some time to figure out what I want to do once I graduate. However, there are so many options I would like to explore before I decide on something. I am worried that I may get bored with business. What are other options? What is other subject matter I could explore in high school to better prepare me for university? There are just so many unknowns, and life after high school is scary to think about.



Influence

3

THE NURTURING ART TEACHER

Gender: Female
Age: 39
Income: $80,000
Education: Bachelor of Science in Art Education and Masters in Education

Specific Traits:

1. She is very skilled at drawing and painting but, her technology skills are lacking.
2. She strives to please her students and tries to tailor her classes towards current trends in art.
3. She is the advisor for art club and is always looking for new exciting projects for the kids to do.
4. She's the sweetest teacher. All her students love her and she instill creativity into each and every one of them.
5. Has been teaching for 12 years. So she's kind of in a routine, even though she doesn't want to admit it.

Statement:

As a teacher I am always exploring different kinds of mediums and techniques to keep the kids excited and interested. Recently the students have been asking about doing some digital design work and drawing. Even though I studied art in high school and college I never learned about graphic arts. I would be interested in learning more so that I could help my students succeed when creating digital work.

Influence

4

THE SCIENTIST TURNED TEACHER

Gender: Female
Age: 29
Income: $50,000
Education: Masters of Public Health

Specific Traits:

1. Studied science, and has started her doctorate.
2. Decided to drop out of doctorate school, to pursue teaching career.
3. Has been teaching for a year and is super exhausted from trying to come up with content to keep the students engaged.
4. Tried discussing her issues with other teachers but, they don't want to try anything new or share anything with her because she is new.
5. Super bubbly personality. Which makes her very likeable to the students.
6. She will try anything once but, will make sure she excels at it.

Statement:

As a person who is in her first year teaching, she's not seasoned enough to problem solve solutions to the problems she's seeing in the classroom. She's wondering if it is possible to incorporate other skills into her science class showing the students connections of the content to real world experiences.

Influence

5

THE QUIRKEY STUDENT

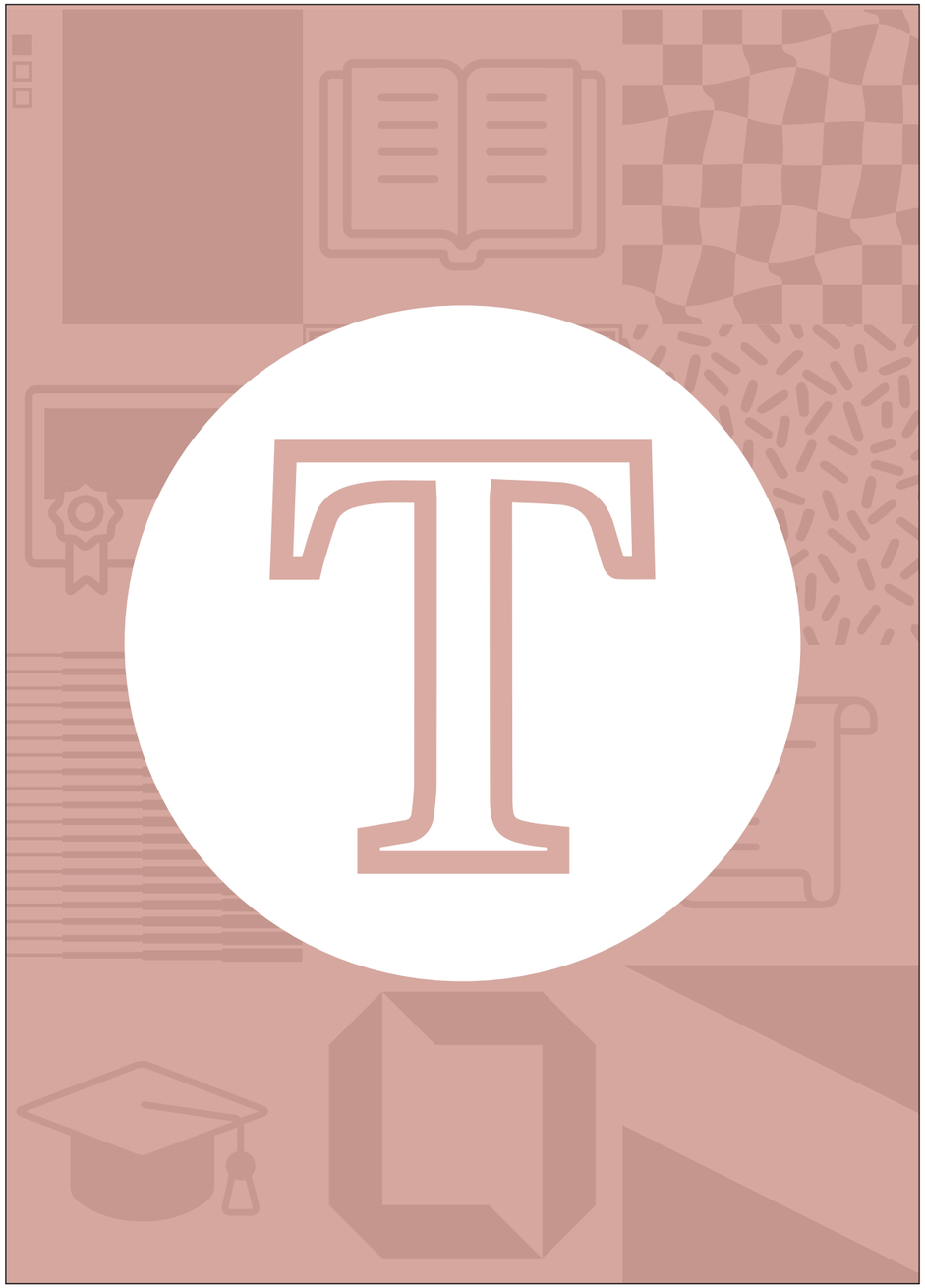
Gender: Female
Age: 18
Income: $5,000 (works part time at Arby's)
Education: Senior in high school

Specific Traits:

1. Is in her senior year of high school. She has taken every single art and design class offered at her high school.
2. She is very good at drawing, is very technology sauvy, and loves to design different things.
3. She has applied at multiple universities to study graphic design. But might explore architecture instead.
4. Her graphic design teacher wasn't well versed in creating content to better teach the skills of graphic design. They relyed a lot on videos but, there was very little creative projects to help students become familiar with the programs and skills.
5. She is working part time during the school year in order to help pay for her college education.

Statement:

As a senior in high school I wish I would have been able to explore graphic design further to see if it was something I want to study in college. I feel as if the skills that I did learn throughout high school could help me in other areas of my life, like if I decide to persue a career in architecture instead. I really enjoy designing things and would love it if I did this on a daily basis.



Influence

6

THE ENGLISH TEACHER

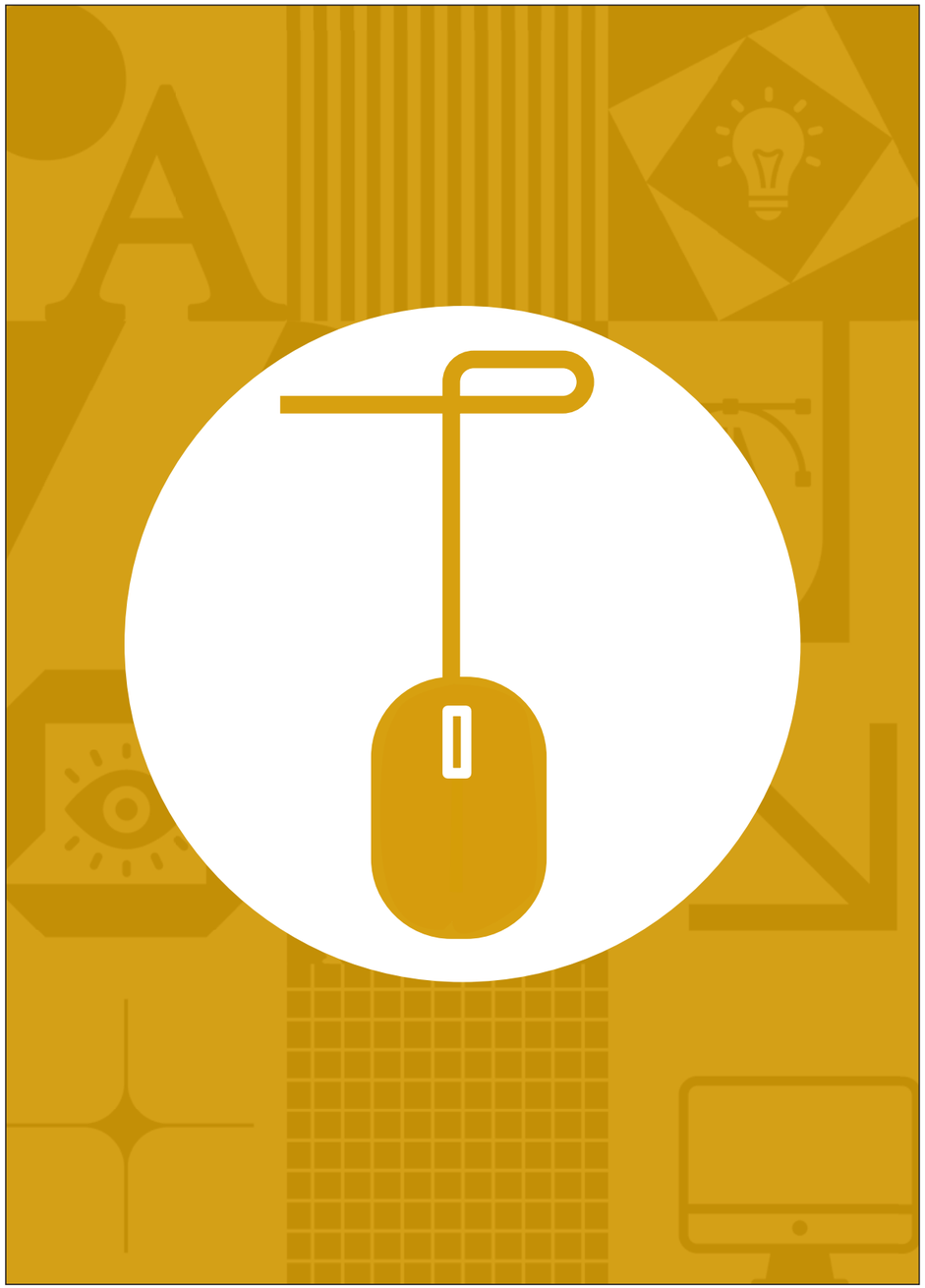
Gender: Male
Age: 45
Income: $50,000
Education: Bachelor of Science in Education

Specific Traits:

1. Has been teaching 9th grade English for 10 years.
2. Has been noticing that students aren't as engaged in school as they used to be.
3. Feels burnt out trying to keep their students engaged.
4. Has considered leaving the profession becasue they are so frustrated.
5. He wishes he didn't teach nineth graders.

Statement:

As a fairly seasoned teacher I have noticed that in the last few years students engagement has been lacking when it comes to school. I have also noticed that even though the students I teach have grown up with technology, they really have no idea how to actually use it as a useful tool. I'm wondering how I could incorporate other content into my class to increase student engagement and also better their tech skills.



Influence

7

THE ONE WHO NEVER SLEEPS

Gender: Female
Age: 37
Income: $61,000
Education: Bachelor of science in art education, Bachelor of fine arts in graphic design and working on a master of fine arts in graphic design

Specific Traits:

1. Worked in the industry as a graphic designer for multiple years.
2. Was hired in the CTE department at a high school because of her extensive technological skills and experience.
3. Fun spirit, who loves to try and experience new things.
4. Is constantly bombarded by other teachers to help them graphically with projects. Which is exhausting because of all the other things she has going on.

Statement:

As a designer turned teacher I struggle with breaking skills and content down in order to teach appropriate age content to my high school students. I am constantly asked to design things for other teachers and help students with projects for other classes. Not only do I have to teach and plan for my classes. Now I get to do it for others too.

Influence

8

THE JACK OF ALL TRADES

Gender: Female
Age: 25
Income: $25,000
Education: Bachelor of Arts in Communications

Specific Traits:

1. Studied communications in university so that she could enlist in the air force working in public affairs.
2. Public affairs involves creating content for the public to understand the missions of the United States Airforce.
3. She has been involved in documenting the removal of fallen soliers from foreign countries and their return to America to be buried.
4. Despite the serious nature of her work she is a jokster. Always coming up with new ways to prank her friends.

Statement:

As an active duty airmen working in public affairs, I could learn a lot about creating visual content through graphic design curriculum. Learning design basics and layout could help the public better understand the missions of the United States Airforce. Pictures are worth 1,000 words but, being able to expand upon that information and educate the public more fully would help alleviate the publics questions and concerns.


Influence
2
THE DECA PRESIDENT
Influence
8
THE JACK OF ALL TRADES