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Videntis: A Design-Based Methodology for Secondary Educators

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Videntis

A Design-Based Methodology for Secondary Educators

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Abstract

Videntis explores the application of graphic design process and visual outcomes to secondary education curricula in Alabama. Videntis was influenced by the following methodologies currently used in education: Design-Based Learning (DBL), Problem-Based Learning (PBL), Engineering Design Process (EDP), Project-Based Learning (PBL), and Design Thinking (DT). The paper provides the definitions of these methodologies and the benefits of these methods in the classroom. In the formation of my methodology, seven high school educators were interviewed to obtain their perspectives on the framework of Videntis. The results identified factors that would best help them teach content to their students. Videntis is an introductory design methodology that infuses the graphic designer's thought process into core curriculum subjects such as Mathematics, History, English, and Science. The method incorporates the important skills of communication, collaboration, problem solving, and creativity through the creation of hands-on projects resulting in visual outcomes. Teachers can access Videntis digitally via a web-based organization, which offers support and practical ideas.

Introduction

Growing up in the rural area of Blount County, Alabama, opportunities in the visual arts at school were inconsistent. Throughout elementary school, I had access to several art activities and classes, and I realized that I grasped the course material better if the subject was taught using hands-on interaction or visuals. I had excellent educational experiences in History, Science, and Music because of the hands-on opportunities offered to me as a student. For example, when discussing the topics of World War II, my teacher would integrate photographs while teaching the material. In my physical science class, we learned about kinetic energy and were instructed to make a functional rubber band car using our problem-solving skills. In my music class, I learned to play an instrument by utilizing visual diagrams of the keys in my beginner's book.

Unfortunately, due to county-wide budget cuts, the opportunity to experience any form of visual arts was rare in my high school. After graduation, I decided to major in graphic design and realized how many classmates had graphic design experiences in their high school curriculum. It was apparent that their creative thinking, problem-solving abilities, and communication skills were heightened due to prior arts experiences offering the resources to hone these skills. Reflection on my personal education and its lack of design experience created the inspiration for this research on how design can improve secondary education. I believe that a methodology that introduces design thinking and allows students to learn course material through visual outcomes will teach vital 21st century skills, such as creative thinking, problem solving, critical thinking, and collaboration.

Historically, educators have used traditional teaching strategies such as relying on textbooks to teach content, the teacher having complete control of the classroom, lecture-based presentations, and students learning through repetition and memorization with little to no scope

for critical thinking in the class.[1] Writer Neha Joshi states that students have different preferences for learning content, and there is no specific strategy that can fit all students.[2] The Alabama State Department of Education's mission is to create opportunities for all students to prepare for career readiness outside of school.[3] If that is a true statement, what if there was a teaching strategy to assist faculty in teaching all students 21st-century skillsets for their future? I conducted a literature review on five secondary education teaching methodologies to clarify each methodology's concept to then develop an original method for secondary educators to use in the classroom. These methodologies include the following: Design-Based Learning (DBL), Problem-Based Learning (PBL), Engineering Design Process (EDP), Project-Based Learning (PBL), and Design Thinking (DT). Through this research, I found that these five strategies have similar concepts of creating a solution for problem-based questions, which in turn encourages students' creativity, critical thinking, problem-solving, and communication skills. These methods have similar frameworks using a designer's mindset through varied outcomes ranging from problem-solving solutions to three-dimensional artifacts. After reviewing the teaching methods above, it is clear that current teaching strategies are time consuming, very specialized, and often not feasible for the general secondary educator. This led me to create my methodology, Videntis. Videntis assists secondary educators in utilizing the design process in all subjects by simplifying the process for the educational generalist while offering easy to access, web-based support.

[1] Create Courses, "What Is the Traditional Method of Teaching?: Definition and Characteristics," Graphy Blog, June 16, 2022, https://graphy.com/blog/traditional-method-of-teaching/.
[2] Neha Joshi, "Online Learning vs Traditional Learning," Evelyn Learning Systems, August 21, 2020, https://www.evelynlearning.com/online-learning-vs-traditional-learning/.
[3] "Home," Alabama State Department of Education, October 23, 2023, https://www.alabamaachieves.org/.

Design-Based Learning

Design-based Learning (DBL) refers to concepts of design thinking and design processes to solve real-life problems within the curriculum that meet common core standards.[4] Design-Based Learning is a well-known teaching method for creating engagement, confidence, creative thinking, and problem-solving skills in the classroom to better prepare students for career readiness post-graduation. In recent years, design integration has been accepted within K-12 education. Well-established educator Doreen Nelson created the methodology in the late 1960s to place design throughout all K-12 subjects: Language Arts, History, Mathematics, Art, Music, and Science.[5] This cognitive process through a constructivist framework known as the "Backwards Thinking Module" can be intermingled with the original curriculum.[6] Figure 1 shows a visual diagram of how Design-Based Learning works in possible projects by educator Doreen Nelson.[7]

[4] Chris Glavin, "Design-Based Learning," Design-Based Learning | K12 Academics, April 21, 2019, https://www.k12academics.com/Educational%20Practices/design-based-learning.
[5] "Design-Based Learning," The Center for City Building Education Design-Based Learning, accessed November 21, 2023, https://www.designbasedlearning.org/what-we-do, Page 1.
[6] Richard Rosa, "Design-Based Learning: A Methodology for Teaching and Assessing Creativity" (dissertation, California State Polytechnic University, 2016), Page 7.
[7] "Design-Based Learning," The Center for City Building Education Design-Based Learning, accessed November 21, 2023, https://www.designbasedlearning.org/what-we-do.

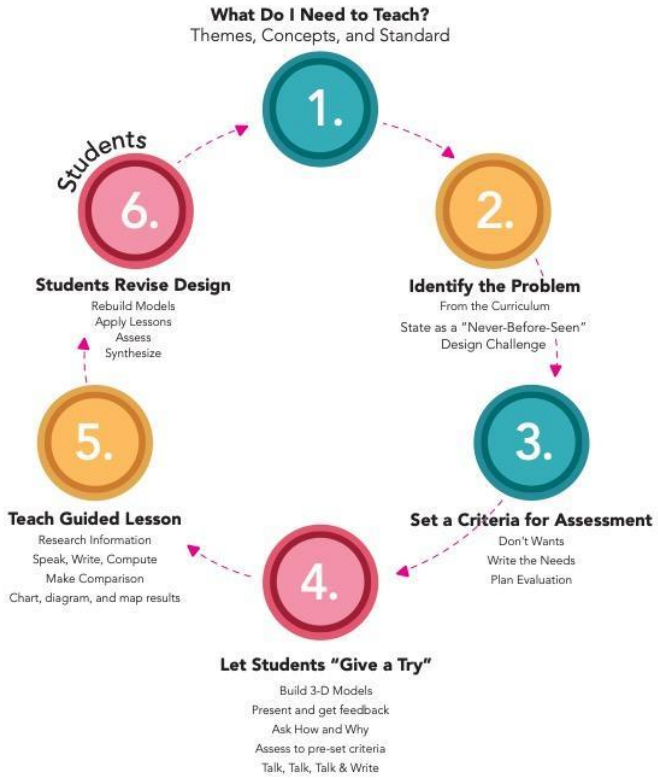

Figure 1. The Backwards Thinking Process Module

The method is broken down into six steps: First, the teacher selects a theme or concept to teach that reaches common standards with the state. Secondly, the instructor chooses a problem within the curriculum for the student to solve. Thirdly, the teacher sets the criteria for the assignment or project. Fourth, after students come up with options to solve the problem, they then attempt to build the artifact and present it to get feedback from the class to make revisions. Fifth, the teacher prepares a "guided lesson," which uses the students' artifacts as a tool for learning through researching the information, speaking, writing, computing, comparing, and recording the product results by making revisions. Sixth, the students present the final changes to their artifacts and are assessed by the teacher through the presentation.[8] The concept of design-based learning is understanding content through hands-on interactions to solve a problem given by the instructor. The result of this method is the student creating a three-dimensional artifact.

[8] Doreen Gehry-Nelson, "Backwards Thinking Explained," The Center for City Building Education Design-Based Learning, November 19, 2019, https://www.designbasedlearning.org/in-depth/backwards-thinking-explained.

Design-Based Learning is an effective tool for bringing a more profound understanding of the content with hands-on interaction.

An example of how Design-Based Learning works in the classroom is the "Sneaking up on Homework" activity, produced by Doreen Nelson. The activity aims to teach how to view and document a self-selected experience by allowing students to choose an activity to do at home. The student performs the activity for thirty minutes and then writes about the activity. The essential question asked of the student is how they can participate in their education.[9] Figure 2 shows the documented criteria list of what the teacher wants from the student for the outcome.[10]

	Needs:
•	Never-Before-Seen (a term that means what is done should come from students)
•	Decide on one Homework Activity to do at home (Examples: gardening with your family, looking out the window to observe the world, reading to a sibling, playing with a pet, playing with your favorite toys, organizing your room, etc.)
•	Do that Homework Activity for at least 30 minutes (less for younger students)
•	Write a detailed description about the Homework Activity (Teachers: this depends on the age or grade level - a Kindergarten student might write a few words, a 5th grader might write 1–3 paragraphs, etc. This writing could be a poem, a comic, etc.)
•	Make a drawing that shows at least 3 things you did and/or observed while doing the Homework Activity. Write a caption that explains the drawing.
•	Share the Homework Activity with someone. Read it to a sibling or parent at home and/or classmates through an online platform.
•	Teachers: Ask your students the following questions: 1. Why did you choose this Homework Activity? 2. What did you notice while doing this Homework Activity?
•	Students: Make a list of other Never- Before-Seen Homework Activities. Put together a booklet of drawings and writings from doing several Homework activities.

Figure 2. Criteria List

[9] Doreen Gehry-Nelson, "Design-Based Learning Activity #1 Sneaking up on Homework," The Center for City Building Education Design-Based Learning, April 18, 2020, https://www.designbasedlearning.org/in-depth/design-based-learning-activity-1-sneaking-up-on-homework.

[10] Doreen Gehry-Nelson, "Design-Based Learning Activity #1 Sneaking up on Homework," The Center for City Building Education Design-Based Learning, April 18, 2020, https://www.designbasedlearning.org/in-depth/design-based-learning-activity-1-sneaking-up-on-homework.

Design-Based Learning is a great teaching strategy that can be integrated into the classroom. Educator Meredith Davis agrees that integrating DBL into everyday curriculum will engage students in the content.[11] As author Richard Rosa explains, the methodology is not meant to replace traditional teaching strategies completely. It is an additional strategy to solve a "Never-Before-Seen Design Challenge," creating a collaborative environment for the students to engage more in the material given that enhances student's creative thinking skills, problem-solving skills, confidence, and communication skills.[12] Design-Based Learning is created for all ages and enhances a problem-based learning environment that brings engagement, confidence, and a student-centered classroom.[13] As the quote states, "Tell me, and I forget. Teach me, and I remember. Involve me, and I learn." The statement is a testament to what Design-Based Learning could do to make a classroom successful.[14] However, the methodology requires a long time with the six-step process, creating a problem in using it in everyday standard subjects in the traditional high school setting.

Problem-Based Learning

Problem-Based Learning is the use of solving real-world problems in a pedagogical strategy. The teaching strategy consists of a three-step methodology that brings problem-solving to education. Figure 3 describes the differences between Tradition-Based Learning and Problem-

[11] Meredith Davis, "Making a Case for Design-Based Learning - Taylor & Francis Online," Making a Case of Design-Based Learning., 1998, https://www.tandfonline.com/doi/abs/10.1080/10632919809599450, 8.
[12] Richard Rosa, "Design-Based Learning: A Methodology for Teaching and Assessing Creativity" (dissertation, California State Polytechnic University, 2016), Page 7.
[13] Hyun-Kyung Lee and Mark Breitenberg, "Education in the New Millennium: The Case for Design-based Learning," International Journal of Art & amp; Design Education 29, no. 1 (2010): 54–60, https://doi.org/10.1111/j.1476-8070.2010.01631.x, 57.
[14]"Origin of 'I Hear and I Forget. I See and I Remember. I Do and I Understand.'?," English Language & Usage Stack Exchange, November 1, 1960, https://english.stackexchange.com/questions/226886/origin-of-i-hear-and-i-forget-i-see-and-i-remember-i-do-and-i-understand.

Based Learning.[15] Problem-Based Learning comprises three steps: assign a real-world problem, identify the needs or what we need to know, and learn about the content to apply a possible solution.[16]

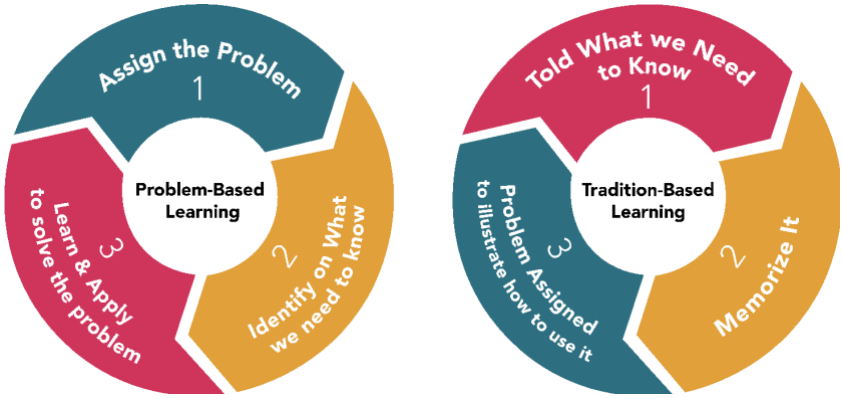

Figure 3. Comparison model of Traditional-Based Learning vs. Problem-Based Learning

This framework is similar to Design-Based Learning since the approach enhances problem-solving, student-centered instruction, collaboration, and critical thinking.[17] The key to Problem-Based Learning is to create a problem solver in the classroom and bring collaborative tactics to the students.[18] The method is successful throughout all early, secondary, and higher education levels.

Researcher Sheeba Sardar Ali shows an example comparing Problem-Based Learning and Tradition-Based Learning in an English language arts course. Using the Problem-Based Learning method, the teacher instructs the students to compose a poem in two different styles and has the students answer the question of which form is most effective and why. While using

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[15] Stuart T. Haines, "Problem-Based Learning: Is It a Better Way to Learn?," Problem-Based Learning: Is It A Better Way To Learn?, March 20, 2019, https://edtheory.blogspot.com/2019/03/problem-based-learning-is-better-way-to.html.
[16] Dr. Serhat Kurt, "Problem-Based Learning (PBL)," Educational Technology, January 8, 2020, https://educationaltechnology.net/problem-based-learning-pbl/, 1.
[17] Maureen Leming, "What Is Problem-Based Learning (PBL): Hun School of Princeton," What is Problem-Based Learning (PBL) | Hun School of Princeton, February 11, 2021, https://www.hunschool.org/resources/problem-based-learning.
[18] Dr. Serhat Kurt, "Problem-Based Learning (PBL)," Educational Technology, January 8, 2020, https://educationaltechnology.net/problem-based-learning-pbl/.

Tradition-Based Learning, the instructor may give a quiz on various styles of poetry.[19] As researcher Dabae Lee states, Problem-Based Learning has multiple benefits in education. It is an interactive methodology that brings engagement and can be relatable with personal references, creating a design challenge for students to solve.[20] Author Dr. Serhat Kurt states that Problem-Based Learning methodology strengthens students' critical thinking and problem-solving skills, which are worth learning to survive post-secondary education.[21] However, writer Marcus Guido believes implementing too much of this teaching strategy could cause a drop in test assessment scores if teachers focus on real-life scenarios instead of the standard core curriculum.[22] In addition, teaching students through Problem-Based Learning may seem intimidating if an educator is not familiar with the method of instruction.

The Engineering Design Process (EDP)

The Engineering Design Process is a well-known methodology engineers use to solve open-ended problems in a student-led environment using group settings and learning through reflection.[23] The method is used within K-12 STEM courses in education and results in an actual product. In K-12 education, the acronym STEM means courses of Science, Technology, Engineering, and Mathematics. The Engineering Design Process is a usable framework with

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[19] Sheeba Sardar Ali, "Problem Based Learning: A Student-Centered Approach," *English Language Teaching* 12, no. 5 (April 11, 2019): 73, https://doi.org/10.5539/elt.v12n5p73, Page 74.
[20] Dabae Lee, "How to Personalize Learning in K-12 Schools: Five Essential ... - JSTOR," How to Personalize Learning in K-12 Schools: 5 essential Design Features, May 2014, https://www.jstor.org/stable/44430266, 13.
[21] Dr. Serhat Kurt, "Problem-Based Learning (PBL)," Educational Technology, January 8, 2020, https://educationaltechnology.net/problem-based-learning-pbl/, 1.
[22]Marcus Guido, "5 Advantages and Disadvantages of Problem-Based Learning [+ Activity Design Steps]," prodigygame.com, December 14, 2016, https://www.prodigygame.com/main-en/blog/advantages-disadvantages-problem-based-learning/#:~:text=Advantages%20of%20Problem-Based%20Learning%201%201.%20Development%20of,5.%20Improvement%20of%20Teamwork%20and%20Interpersonal%20Skills%20.
[23] Nguyen Tien Long, Nguyen Thi Hoang Yen, and Nguyen Van Hanh, "The Role of Experiential Learning and Engineering Design Process in K-12 STEM Education," *International Journal of Education and Practice* 8, no. 4 (2020): 720–32, https://doi.org/10.18488/journal.61.2020.84.720.732, Page 722.

concepts similar to the graphic designer's thought process. The method is student-based, using group settings and learning through reflection. Figure 4 illustrates how the Engineering Design Process works within the classroom.[24]

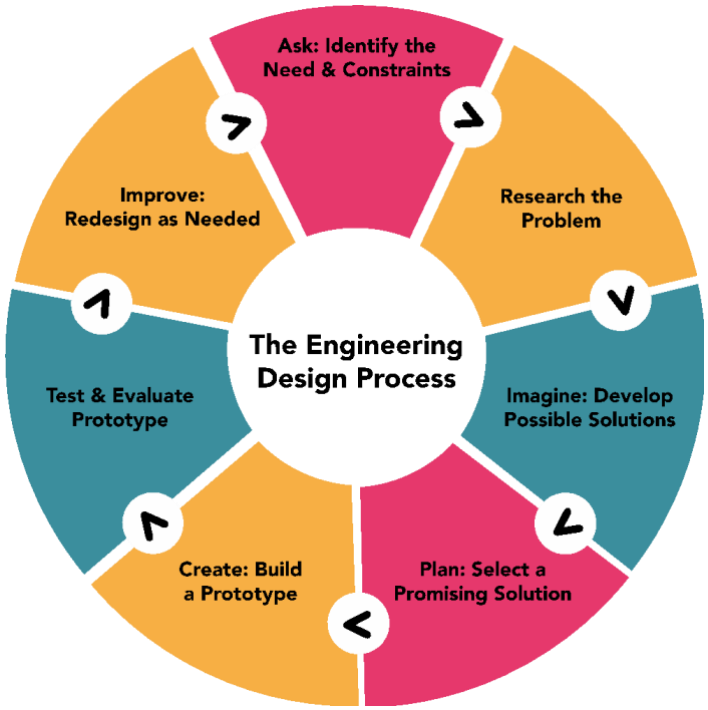

Figure 4. Engineering Design Process

The teaching strategy consists of seven steps: asking questions regarding the problem, researching the problem, imagining possible solutions, planning how to create the solution, making the prototype of the product, testing the prototype, and improving the design. An example utilizing the Engineering Design Process comes from Mike Dave Ayeni. The purpose of "The Marshmallow Challenge" is for students to use cooperation, problem-solving, and creative thinking skills by creating a skyscraper from toothpicks and marshmallows. The tallest-standing

[24] Mike Dave Ayeni, "21 Engineering Design Process Activities to Engage Critical Thinkers," 21 Engineering Design Process Activities To Engage Critical Thinkers, April 14, 2023, https://www.teachingexpertise.com/classroom-ideas/engineering-design-process-activity/.

skyscraper wins the challenge.[25] Author Nguyen Tien Long states that the engineering design process is an impactful methodology for K -12 STEM courses because it allows students to understand the content deeply by solving challenges.[26] Authors Kelly Margot and Todd Kettler agreed that using EDP is an effective strategy by infusing a project-based approach to STEM-based courses.[27] The Engineering Design Process is a robust teaching strategy in secondary education, especially in STEM-related courses that create products. The method can be extended for a long time, with one project per semester. However, it would be difficult to integrate the technique in subjects such as Mathematics, English, History, and Science for shorter period projects that would work for the secondary educator.

Project-Based Learning

Project-Based Learning is a project-based instruction that brings real-world problems for students to solve by creating products for real-life audiences in the classroom.[28] The method aims to create a deeper understanding of the content being taught, meaning it takes more extended periods to complete the product.[29] The methodology enhances students' critical

[25] Mike Dave Ayeni, "21 Engineering Design Process Activities to Engage Critical Thinkers," 21 Engineering Design Process Activities To Engage Critical Thinkers, April 14, 2023, https://www.teachingexpertise.com/classroom-ideas/engineering-design-process-activity/.
[26]Nguyen Tien Long, Nguyen Thi Hoang Yen, and Nguyen Van Hanh, "The Role of Experiential Learning and Engineering Design Process in K-12 STEM Education," *International Journal of Education and Practice* 8, no. 4 (2020): 720–32, https://doi.org/10.18488/journal.61.2020.84.720.732, page 720.
[27] Kelly C. Margot and Todd Kettler, "Teachers' Perception of Stem Integration and Education: A Systematic Literature Review - International Journal of STEM Education," Springer Open, January 14, 2019, chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://link.springer.com/content/pdf/10.1186/s40594-018-0151-2.pdf, 3.
[28] "What Is Project Based Learning?," PBLWorks, 2024, https://www.pblworks.org/what-is-pbl.
[29] Rafia Shabbir, "6 Steps to Implement Project-Based Learning in the Classroom," Educationise, February 15, 2024, https://educationise.com/post/6-steps-to-implement-project-based-learning-in-the-classroom/#:~:text=6%20Steps%20to%20Implement%20PBL%20in%20Classroom%201,Assessment%20...%206%206%29%20Evaluate%20the%20Experience%20.

thinking, creativity, problem-solving, collaboration, and communication skills.[30] Figure 5 showcases the six-step process of the method.[31]

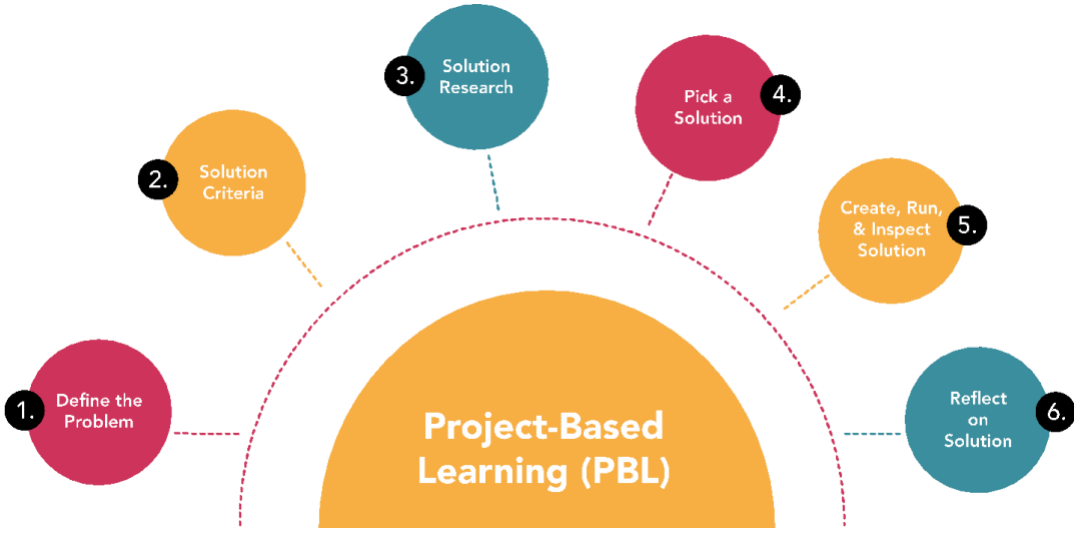

Figure 5. Project-Based Learning Diagram

The first and second steps of the method are for the faculty to identify the problem and plan for the project. The third step involves setting a student timeline and scheduling the project's activities. The fourth step requires the student to choose a solution to create. Step five tasks the student to create the solution, test it, and revise the product. Finally, during step six, the student evaluates their work. The method aims to create a deeper understanding of the content being taught, requiring extended periods to complete the product.[32]

An example of the technique used in secondary education comes from High Tech Middle School in San Diego, California. Educators Leily Abbassi and Jennie Ganesan planned their

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[30] "What Is Project Based Learning?," PBLWorks, 2024, https://www.pblworks.org/what-is-pbl.

[31] "Engaging He Students with Project-Based Learning," Qedex, accessed April 13, 2024, https://qedex.org/courses/engaging-higher-education-students-with-project-based-learning/.

[32] Rafia Shabbir, "6 Steps to Implement Project-Based Learning in the Classroom," Educationise, February 15, 2024, https://educationise.com/post/6-steps-to-implement-project-based-learning-in-the-classroom/#:~:text=6%20Steps%20to%20Implement%20PBL%20in%20Classroom%201,Assessment%20...%206%206%29%20Evaluate%20the%20Experience%20.

eighth-grade U.S. history course's unit on immigration. They wanted to go beyond the textbook and understand the topic by asking questions, researching the subject, and collecting narratives.[33] Abbassi and Ganesan created the "New American Project" by allowing students to study immigration in the 20th century. The students then used their knowledge to inform the second half of the project, having interviews with recent immigrants called "New Americans."[34] The students were paired with a first-generation American and interviewed in person, via email, and over the phone. The class assisted each other with thoughtful interview questions, practiced their interview techniques, and researched the country of origin of those who participated in the interviews. The ending results were outstanding, and the students demonstrated critical thinking by noticing the strengths and weaknesses of oral history as an inquiry strategy. [35]Project-Based Learning is more than a teaching strategy; it creates personal connections. Authors Heather Lattimer and Robert Riordan agree that Project-Based Learning enhances students' engagement, and leads to innovation, responsive teaching practices, and a school system passionate about learning.[36]Project-Based Learning is an innovative teaching strategy that pushes students to 21st-century skill sets. However, focusing too much on the project itself can overshadow overall educational objectives if not balanced carefully.

[33] Heather Lattimer and Robert Riordan, "Project-Based Learning Engages Students in Meaningful Work," Middle School Journal 43, no. 2 (November 2011): 18–23, https://doi.org/10.1080/00940771.2011.11461797, Page 19.
[34] Heather Lattimer and Robert Riordan, "Project-Based Learning Engages Students in Meaningful Work," Middle School Journal 43, no. 2 (November 2011): 18–23, https://doi.org/10.1080/00940771.2011.11461797, Page 19.
[35] Heather Lattimer and Robert Riordan, "Project-Based Learning Engages Students in Meaningful Work," Middle School Journal 43, no. 2 (November 2011): 18–23, https://doi.org/10.1080/00940771.2011.11461797, Page 19.
[36] Heather Lattimer and Robert Riordan, "Project-Based Learning Engages Students in Meaningful Work," Middle School Journal 43, no. 2 (November 2011): 18–23, https://doi.org/10.1080/00940771.2011.11461797, Page 22.

Design Thinking

Design Thinking is a thought process and instruction strategy used throughout all stages of education.[37] Figure 6 illustrates how the methodology works. The method comprises four steps: understanding the problem, developing possible solutions, prototyping and testing the solution to make revisions, and implementing the solution.[38]

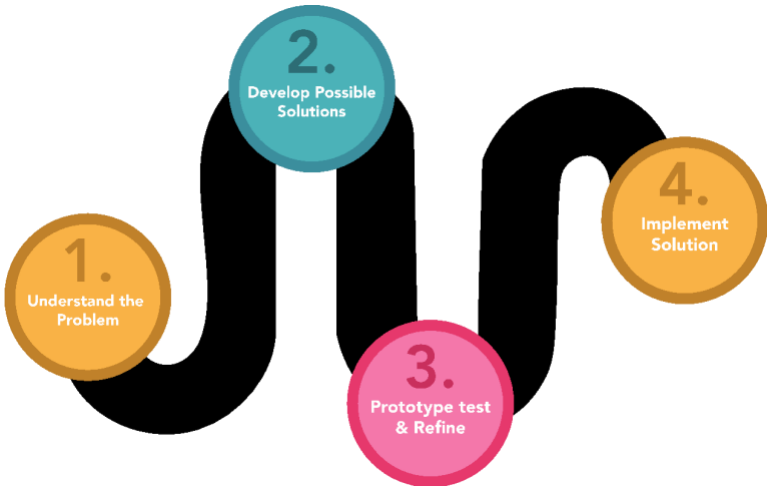

Figure 6. Diagram of Design Thinking Process

One example of using Design Thinking comes from Notre Dame High School, where Rebecca Girard's science class uses design thinking throughout her teaching approach for her students to solve real-world problems. Rebecca Girard allows students to design their lab experiments to discover and understand the content, "Why doesn't everyone compost?" and the Ebola Challenge. Girard's science students pursued a year-long project of Design Thinking, which they showcased in a portfolio. [39] Design Thinking is a method that enhances other skills

[37] Sabba Quidwai, "What Is Design Thinking in Education? - Designing Schools," Designing Schools with Dr. Sabba Quidwai, February 21, 2024, https://designingschools.org/what-is-design-thinking-in-education/.
[38] Rebecca Linke, "Design Thinking, Explained," MIT Sloan, September 14, 2017, https://mitsloan.mit.edu/ideas-made-to-matter/design-thinking-explained.
[39]Rebecca Girard, "Real-Life Examples of Design Thinking in the Classroom," Real-Life Examples of Design Thinking in the Classroom, November 3, 2017, https://www.gettingsmart.com/2017/11/03/real-life-examples-of-design-thinking-in-the-clasroom/#:~:text=Sample%20design%20thinking%20projects%20have%20included%3A%20students%20designing,design%20thinking%20projects%20that%20become%20their%20digital%20portfolios.

besides communication, collaboration, and critical thinking. As writer Sabba Quidwai states, the technique infuses empathy, confidence in creativity, and learning from failure.[40] Author Bryan D. Orthel considers Design Thinking a brief representation of designers' thought processes to solve problems in their field.[41] However, there seems to be inconsistency in what the term Design Thinking means throughout the literature. The foundation of Design Thinking dates to industrial Europe, where these designers established their thoughts of knowledge, and today, the context of Design Thinking is still debated. Researcher Sabba Quidwai believes that the strategy aims to bring creative thinking, collaboration, communication, and problem-solving skillsets out of students.[42] Design Thinking would be an excellent tool for students in the classroom because of the use of innovation and creative problem-solving subjects that can be infused into the curriculum. However, because the term "Design Thinking" is used broadly and means different things to different people, it is difficult for educators to find helpful resources and practical guidance on how to utilize the method in the classroom.

Interview/Questionnaire

To help evaluate the framework of Videntis, I obtained the IRB approval from Jacksonville State University on December 16, 2023, to conduct interviews with area educators. I interviewed seven current high school educators/administrators across Alabama in the spring semester of 2024. Because I am not a secondary educator, I wanted to gain insights and perspectives into teaching strategies. The seven educators I interviewed were from Pleasant

[40] Sabba Quidwai, "What Is Design Thinking in Education? - Designing Schools," Designing Schools with Dr. Sabba Quidwai, February 21, 2024, https://designingschools.org/what-is-design-thinking-in-education/.
[41] Bryan D. Orthel, "Implications of Design Thinking for Teaching, Learning, and Inquiry," *Journal of Interior Design* 40, no. 3 (2015): 1–20, https://doi.org/10.1111/joid.12046, 2.
[42] Sabba Quidwai, "What Is Design Thinking in Education? - Designing Schools," Designing Schools with Dr. Sabba Quidwai, February 21, 2024, https://designingschools.org/what-is-design-thinking-in-education/.

Valley High School, Oxford High School, Donoho School, Alexander City High School, and Lincoln High School. Each educator interviewed teaches a different subject, as I hoped to gain insight on how my methodology could be utilized across multiple subject areas.

The following questions were posed in my interviews:

1. What subject do you teach?
2. What grade level of students do you instruct?
3. Do you integrate artifacts into your curriculum?
4. Do you use Project-Based Learning or Problem-Based Learning in your curriculum?
5. Do you think that learning by doing would be a benefit for high school students?
6. Do you think Videntis methodology would work throughout all subjects?
7. Would you be interested in a teaching strategy that betters your students' understanding of the content that you're teaching through a creative outlet?
8. Would you be interested in integrating this methodology into your classroom?

After interviewing all seven educators, I received an abundance of positive feedback from the candidates regarding the functionality of my proposed methodology. All the educators had beneficial advice regarding the framework of the method. Five out of seven subjects interviewed revealed that they produce artifacts and use Problem-Based Learning/Project-Based Learning in their curriculum.

One example comes from Randi Morrow at Lincoln High School. Morrow teaches eleventh and twelfth-grade literature. She tries to implement elements of Project-Based Learning and the Engineering Design Process strategy at the end of each semester by assigning the "Shield Project." The students read "Beowulf," after which they discuss heroes and heroic qualities

amongst each other. The students then create a shield showcasing their heroic qualities through quotes and symbols. At the end, the students present their work in front of the class.

Another example of integrating artifacts within the curriculum is from Chenein Compton at Oxford High School. She teaches ninth-grade Biology and AP Environmental Science. Throughout the conversation, she explained how she integrated modeling into the curriculum. Students had to create a model, a skit, or a role-play using themselves as the different components of a muscle cell. Hearing these exciting examples of what the model of strategies uses, I asked each participant whether they believed that my proposed methodology would function and if they were interested in using it in the classroom. 100% of my participants stated that Videntis would work in each subject in secondary education and are interested in possibly using the methodology in their classroom to teach their curriculum.

Part II: Videntis

Inspiration

The inspiration for Videntis comes from both personal and professional experiences throughout my life. My secondary education journey consisted of no art classes, and opportunities to be creative were rare in my school system. Also, with my professional experience as a dual-enrollment student success coach, I have noticed a lack of communication, creativity, problem-solving skills, and confidence in students across school systems. Thinking about the demographic, I decided to design for the faculty, as a student's education journey is influenced by their teachers. So, I was inspired by the passion for helping students to be creative and gain 21st-century skillsets: communication, collaboration, problem-solving, and innovative thinking. I created a design-based methodology that introduces a designer's thought process that can be used in Mathematics, English, Science, and History curricula. The idea is not to disregard other teaching models; it is a strategy to synthesize them into an approach that is applicable across multiple subjects in a way that is practical for the secondary educator.

The Videntis Methodology

For Videntis (figure 7), I wanted the methodology to be user-friendly so that the generalist and specialist could use it in their classrooms. Videntis is an interdisciplinary teaching strategy that introduces the designer's thought process in creating visual outcomes for secondary educators. The methodology is comprised of five steps. The first step for the faculty is choosing a topic or subject that coincides with the state's standards by teaching the preliminary content. Second, the teacher decides on the criteria and the visual outcome the students will create. The faculty explains to the students how to complete their projects successfully, allowing the student

to begin the idea stage. Third, the students research their ideas for their projects. The students provide research backing up their topics by requiring them to look at more than one source. The students are required to turn in their research to their teacher for a progress check and receive feedback to go to the creation stage. Fourth, the students begin to create their own products. The students experiment, create rough prototypes, and provide them to the teacher and classmates. They bring in the samples and explain why they made the choices they made. Teachers and classmates supply feedback on the work and give final critiques before students create the final products at home. In the fifth step, students complete their final products. The students bring the final products to class and explain the whole process of their product development. Students also submit a small reflection essay regarding something they enjoyed and something they would change to make an improvement to their project.

Videntis does have similar concepts compared with Design-Based Learning, Problem-Based Learning, Project-Based Learning, Engineering Design Process, and Design Thinking. The difference between my proposed methodology and these are the inclusion of research accountability, inserting creativity, and understanding failure is not fatal. Students apply research, no matter which subject is taught. Students creatively consider possible solutions to problems. Finally, through the feedback of others and self-reflection, students learn to collaborate, communicate, and grow, no matter the outcome of the product. These skills will benefit the students long after graduation.

Student success has different terms. Some may describe it as having a 4.0 grade point average, academic achievement, and participating in extracurricular activities. A student may excel in a sport and know how to use y=mx+b, but how will that knowledge benefit the student post-graduation? Videntis allows educators to teach core content while giving all students the

opportunity to experiment with problem-solving, communication skills, creative thinking, and learning by creating a product, and this will better prepare students for life after high school.

Project: English/Literature Course

The Coat of Arms project (figure 8) is an example of how Videntis might function in a high school English course. Step one is teaching the subject. Teaching the literature of "Beowulf" and "Sir Gawain and the Green Knight," students read the poems in class. The second step consists of the faculty curating the project guidelines and informing the student on the requirements of the project: The Coat of Arms. After examining the literature of "Beowulf" and "Sir Gawain and the Green Knight" and discussing the heroic qualities of the characters in each poem, students identify four heroic attributes of their own. Students create a 13 x 19" coat of arms shield using symbolism, color, and visuals which describe their own heroic qualities. Students research four words that represent themselves as a hero. After the initial explanation of the project, the students begin the research and ideas stage of their shield. Step three begins as students choose four words to represent themselves and then research those four words and what they mean visually. Students then create rough drawings of symbols representing those words. Students develop a presentation to turn in on those four words and why they chose those them. The teacher and classmates give feedback on ideas. Step four consists of revision and creating the final shield. The students take input from their research presentations and create their shields. The students bring in their shields and work on them during class. The workday is the final opportunity to get feedback from classmates and teachers before their final presentation of the shield. During the fifth and final step, students present their final projects and discuss their personal heroic qualities and why they chose the final visuals for their shields. After the final presentation, students write a short reflection essay on what they enjoyed about the project, what

was successful, and what they would do differently next time. The teacher grades the students' presentations, participation in process requirements, and turning in the final product.

Brand Identity: Videntis

The graphic identity of Videntis is bright and geometric. The artifacts designed for my thesis exhibit include logos, infographic posters (figure 9) about the method, the mission, the benefits, and a case study example of how Videntis works in an English course, booklets, trifold, and website design. The name "Videntis" was born out of my initial concept of creating visionaries throughout the classroom. Beginning from my search of the word "visionary," I landed on the Latin genitive form, "videntis." I chose this name because it is adaptable, and it references the idea of an individual who can see or perceive, which is the goal of helping students solve problems creatively. The logo design (figure 10) is based on the concept of the building blocks of education. It is important to teach students the necessary skills to build on to be successful in their education journey, so using an aesthetic of geometric shapes to create the logo system was the best solution. I based the geometric forms off the typeface Alfarn. The color palette (figure 11) of cyan, magenta, and yellow was chosen because these colors are the building blocks of printing. The booklet and trifold (figure 12) are infographic pieces that inform the audience about the proposed method. I utilized the same aesthetic and type treatment used in the infographic posters to create these smaller products that can be easily accessed and shared with educators.

Website: Videntis.org

Besides the creation of the teaching strategy to be used in high school classrooms, I designed an organization called Videntis.org. Videntis.org (figure 13) is a resource to educators

that is accessed digitally. Since education is transitioning into a digital age, designing an interface for the faculty was the best solution to offer quick help to educators who need more information. The graphic design behind Videntis.org coincides with the brand identity aesthetic of the infographic posters, geometric assets, and simple type treatments so that secondary educators can easily digest the content about Videntis.

The mission of Videntis.org is based on three words: Advocate, Educate, and Integrate. The organization advocates for the resource of Videntis, which infuses creativity, critical thinking, and problem-solving skills into the high school curriculum. Videntis is designed to educate high school faculty members on the tools that the method offers and supports their class curricula by providing professional development opportunities for faculty to learn about the methodology to integrate the strategy. The website offers an opportunity for faculty to incorporate the method in their classroom with provided activity examples and free subscription to receive unlimited teaching strategies they can use in the future.

Figure 7 Videntis Methodology

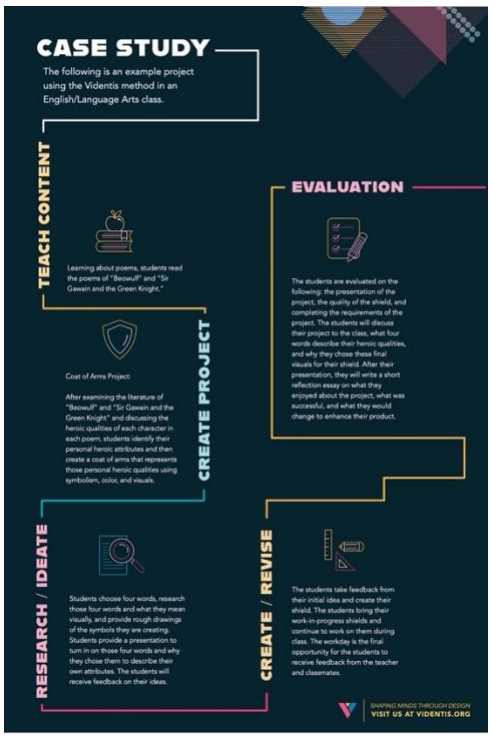

Figure 8 Case Study

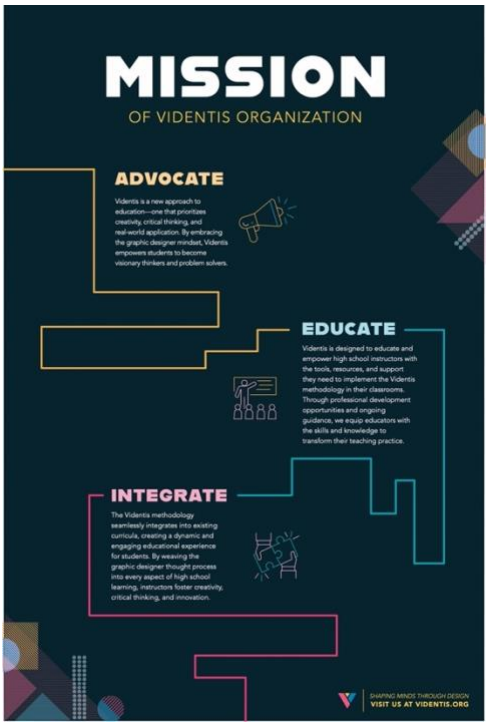

Figure 9 Infographic Posters

Figure 10 Logo Variations of Videntis

Figure 11 Videntis Pattern

Figure 12 Booklet, Trifold, and Business Card Design

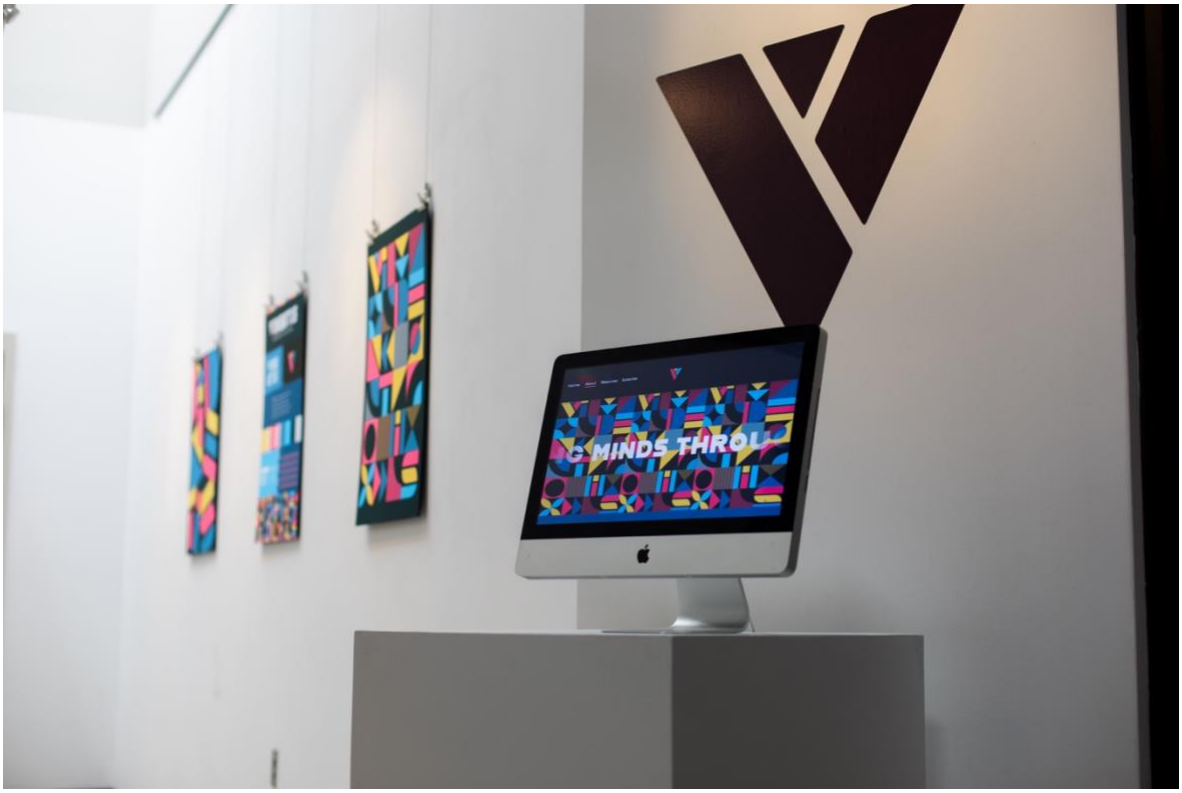

Figure 13 Videntis.org

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