DIGITAL HALLWAYS

CREATING ONLINE COMMUNITY CONNECTIONS TO ENHANCE EDUCATION

PROJECT REPORT

Giovanna Boyle, Mia Drury, Justin Luo

In partnership with the Windsor Central Supervisory Union

Senior Design Challenge

The **Senior Design Challenge** is an interdisciplinary capstone course for undergraduate students at **Dartmouth College**. In this course, teams of students use human-centered design to tackle real-world challenges posed by a variety of partner organizations. The students, who come from a range of disciplinary backgrounds in the arts, sciences, humanities, social sciences, and engineering, collaborate on a project to conduct primary and secondary research, analysis, idea generation, and iterative prototyping to create a product, service, or experience that **addresses a real human need in our local community**.

The COVID-19 global pandemic presented a unique challenge for students in the 2020 version of this class. Dartmouth transitioned to remote learning in March 2020. At that time, students had only completed half of their project process. Many project directions were re-evaluated as both students and their clients adapted to remote work. Ultimately, each team decided to continue to work with their original partner organization. Students collaborated over Zoom, Slack, and Mural to make their projects a reality. This project report represents one team's efforts to address their partner's need.

The Senior Design Challenge is offered by the Thayer School of Engineering at Dartmouth and taught by Professor Eugene Korsunskiy. For more information about the course, please visit www.dartmouth.edu/sdc.

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EXECUTIVE SUMMARY

Our client is the Windsor Central Supervisory Union, a school district in Vermont serving the towns of Barnard, Bridgewater, Pittsfield, Plymouth, Pomfret, Reading, Killington, and Woodstock. Our team's original challenge was to design and pilot a personalized externship program for district educators to connect with local businesses and organizations. As a result of the unique challenges presented by the COVID-19 pandemic and shift to remote learning, we adapted our prompt to the following:

Design a digital experience rooted in WCSU's Strategic Plan that enhances education and promotes collaboration through community-wide visibility.

In the first half of the project, we conducted and analyzed stakeholder interviews and secondary research to build empathy for our client organization and our user. From this analysis, we defined key insights about our client's context and needs. Based on these insights, we ideated potential solutions. With the global pandemic and transition to remote learning, we reevaluated our ideas to allow for prototyping in an online format. We prototyped, received user feedback, and iterated upon our system design, resources, and example portfolios on Medium to arrive at our final solution. Our solution for building digital portfolios in WCSU is rooted in flexible usage, maintaining a low barrier to entry, and community visibility.

MEET THE TEAM

GIOVANNA BOYLE

Giovanna is a Theater modified with English major and a Human-Centered Design minor from Montclair, New Jersey. She is passionate about how art and design are informed by user experience and how they can be used to improve the lives of humans and the condition of our world. At Dartmouth, Giovanna participates in various performance groups and works several on-campus jobs. Her free time is largely spent with her friends, watching films, and exploring far away places.

MIA DRURY

Mia is a Neuroscience major from Ipswich, Massachusetts. Academically, she is most interested in the study of empathy in non-human species, as well as the intersection of art and science education. She loves expressing herself creatively through drawing, painting, and collage. At Dartmouth, she enjoys spending time outdoors hiking, trail running, and nordic skiing.

JUSTIN LUO

Justin is a Computer Science major and Human-Centered Design minor originally from Germantown, Wisconsin. He is passionate about the how humans interact with technology, especially concerning VR and AR technologies. At Dartmouth, Justin enjoys spending time playing tennis, learning how to ski, running outside, and hanging out with friends in the Upper Valley area.

BACKGROUND

In 2018, six Vermont towns merged school districts to form the Windsor Central School District, overseen by the **Windsor Central Supervisory Union (WCSU)**. This merger came about following Act 46, legislation implemented to target the declining student population and a lack of funding to provide access to quality K-12 education for all Vermonters. Although these towns are under one school district, the towns span a large geographic distance—more than 25 miles between the two furthest schools. As a result, the school district serves students from diverse communities.
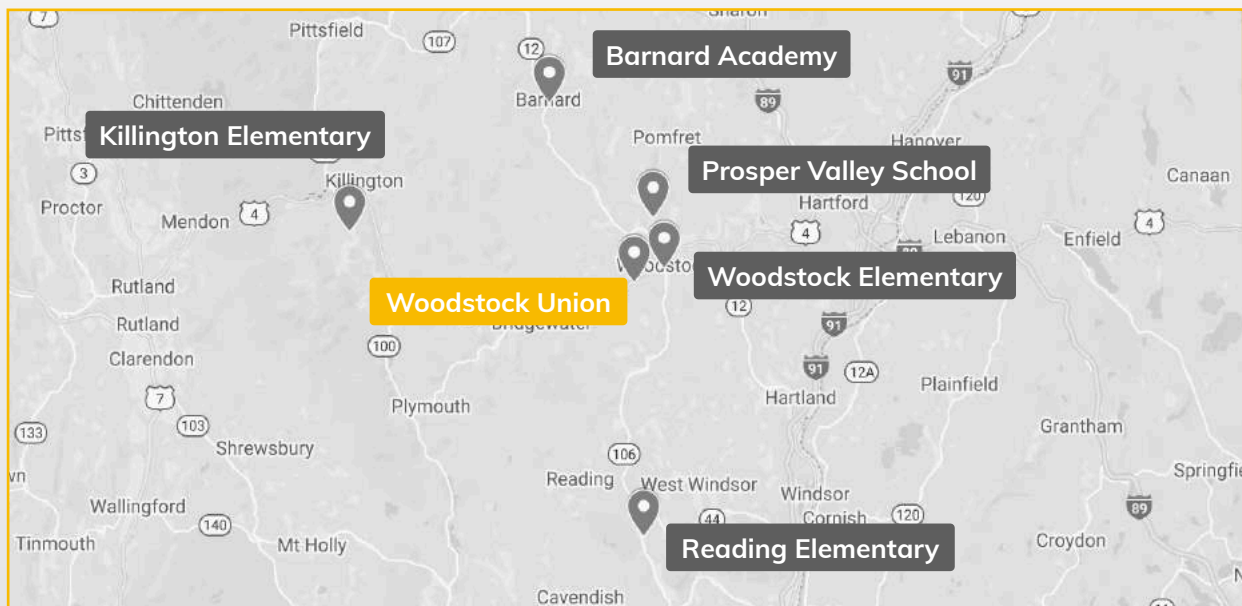
The middle school and high school were combined to form **Woodstock Union High School & Middle School (WUHSMS)**. All of the students from the WCSU's five elementary schools now funnel into a single school serving grades 7-12. As we focused our project scope specifically for WUHSMS, we researched the school to create a profile that would inform our decisions moving forward.
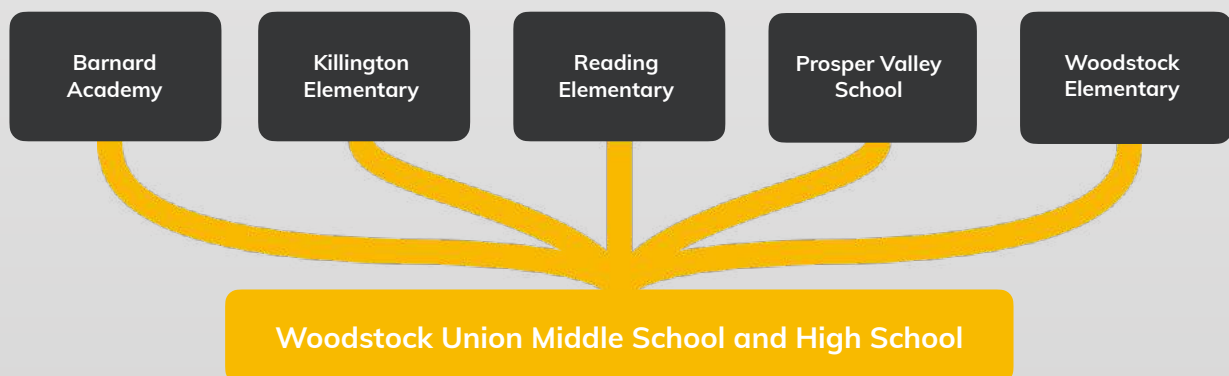
WUHSMS
SCHOOL PROFILE

Woodstock, VT (Population 2,932)

High school enrollment: 364

Middle school enrollment: 178

95% graduation rate

**11:1** student-teacher Ratio

16 AP courses

**Dual Enrollment program with Vermont colleges**

Unique opportunities for students: Innovation Lab, Center of Community Connections (C3), Agriculture Studies, Computer Science, Technical Training Co-Op Program

Based on 2019 statistics

PORTRAIT OF A GRADUATE

When WCSU was created, stakeholders from its member towns came together to articulate a vision for the district and its students. The **Portrait of a Graduate** defines the skills, knowledge, and personal habits that the community believes are most important for their students to develop. The five pillars of the portrait are academic excellence, critical thinking and problem solving, skillful communication, self direction, and stewardship. Each pillar includes 4-6 defining traits that students should strive to acquire and that teachers should use to inform their lessons. In reading the Portrait of a Graduate, it is evident that the community is deeply concerned with preparing their students to be successful citizens. Understanding these goals adds significantly to our research because they **serve as a rulebook for our solution**, ensuring that it aligns with the aspirations of the community we are designing for.
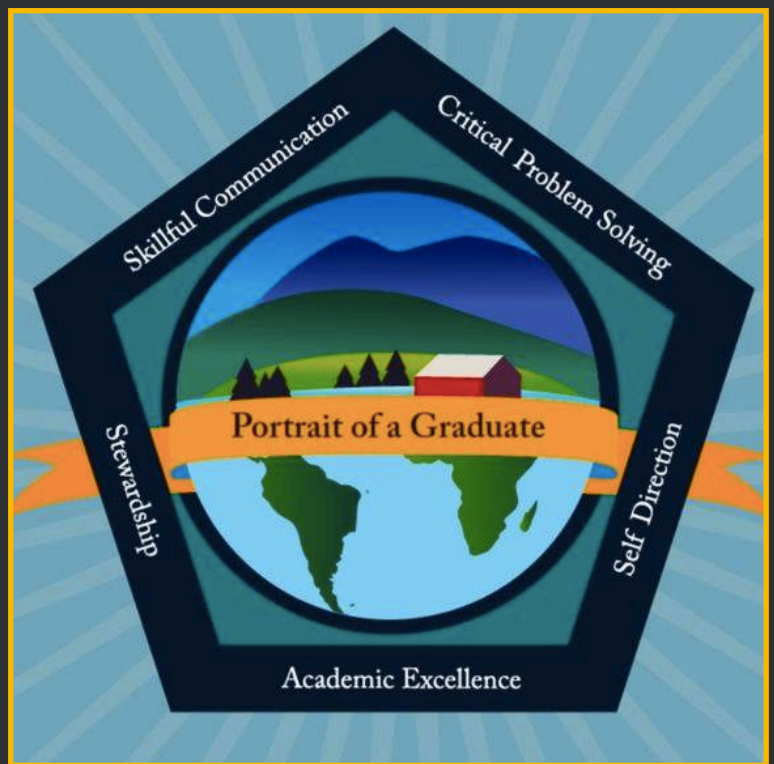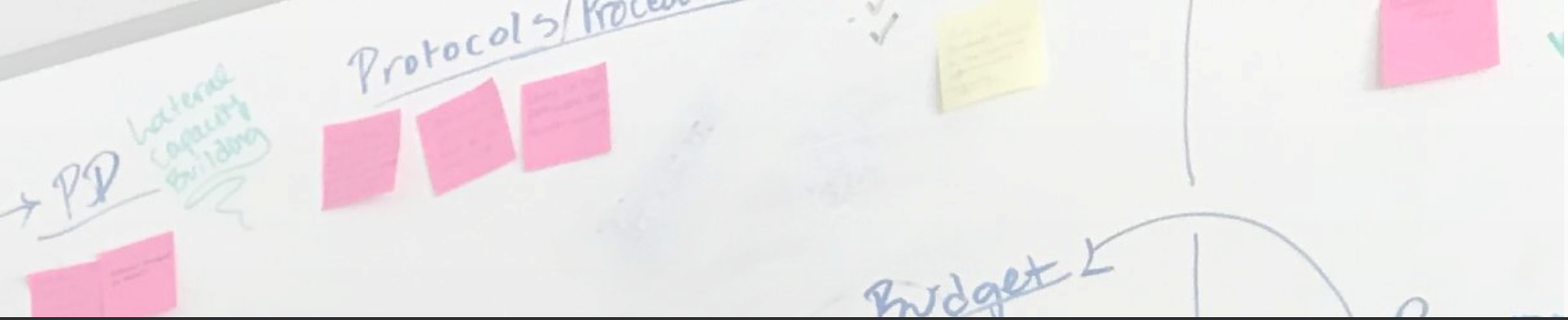
STRATEGIC PLAN

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The **Strategic Plan** defines the actionable steps the WCSU plans to execute over the next 4 years to ensure that their Portrait of a Graduate is achievable for all of the graduates in their district. Particularly, **Step #4: Community Alliance** informs our challenge and is integral to our solution: *"At each grade level, students will engage with and contribute to the community in a way that is thoughtfully and purposefully integrated with the curriculum."* We will take these specific strategies into consideration in our design as well:

Strategy 3.3 Create and implement a school-by-school learning environment to achieve Portrait outcomes (ex. **communication hub***).

Strategy 4.3: Grow the Center of Community Connections (C3) Program, which is dedicated to facilitating connections between students and community resources, to service all students in grades PreK–12.

Strategy 8.3: Redesign school and district websites to improve functionality, communication, and district identity.

*A central location where students and staff can engage in digital communication with individuals in other schools, states, and countries, for educational purposes.

COVID-19 AND
REMOTE LEARNING

COVID-19 PANDEMIC

Midway through March 2020, and midway through our Senior Design Challenge, the US Administration declared a National Emergency in response to the rising number of COVID-19 cases. Institutions of higher learning and K-12 schools began sending students home, closing their campuses, and transitioning to offer remote classes online. On March 12, 2020, Dartmouth College announced that it would move all classes to a remote format and restrict students from returning to campus. On March 26, 2020, Governor Phil Scott of Vermont directed schools to remain dismissed for the remainder of the 2019-20 school year.

WCSU, like countless districts across the country that only offer in-person teaching, struggled to adapt to the emergency transition to remote learning. They have faced challenges including providing digital continuity of learning, ensuring equity and engagement amongst their students, and fostering community alliance during these difficult and unprecedented times.

"This is emergency remote learning as opposed to well-built out online learning. Things are going as well as can be expected."

- WCSU Administrator

EQUITY

Some students in districts like the WCSU do not have equal access to technology and laptops. The district struggles to provide equity across the board to students and educators to facilitate a similar connectivity that exists within the school facility itself.

DIGITAL LEARNING

Educators face challenges in using new digital applications and programs that will provide their students with similar levels of education as in-person learning. Unfortunately, for schools that do not have built-out structures for remote learning, it is difficult for educators to learn new programs like Zoom.

"It's been a steep and lonely learning curve, as I turn my bedroom into my home office/classroom and struggle to find and learn new apps and programs."

- High School Teacher

COMMUNITY ALLIANCE

Community alliance is a key point in WCSU's strategic plan. During remote learning, building community alliance is more challenging and yet crucial. Community alliance promotes community resilience by increasing channels of communication and support between stakeholders. During social distancing, an online system of community connections could not only support the current moment, but build a foundation for future, post-COVID community-based experiences.

STUDENT ENGAGEMENT

Building community alliance also helps serve the need for greater student engagement with remote learning. Student motivation arises from both having a real audience for their work, and understanding how the learning applies to the real world. Ultimately, increased student engagement leads to better educational outcomes.

RESEARCH

We conducted interviews with our stakeholders and looked at secondary resources to better understand our users' needs and the context of our problem.

INTERVIEWS

We conducted most of our primary research within the Woodstock contingency of the WCSU community. We visited the WCSU district office and WUHSMS. We were given a tour of the school and were able to visit an 8th grade science class, an artificial intelligence class, and the school's innovation lab. In each class, we spoke informally with both teachers and students about what they were teaching and learning and we stayed for a brief observation of an 8th grade science class participating in a discussion-based lesson. After the transition to remote learning, we conducted 7 additional interviews through Zoom (some with the same interviewees) to better understand the district's new context.
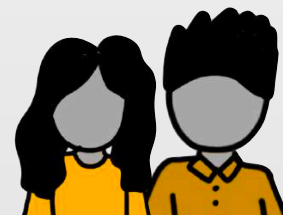
We conducted 24 interviews with the following stakeholders.
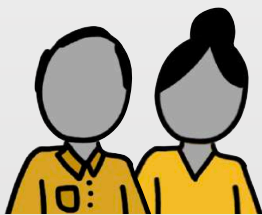
14 educators
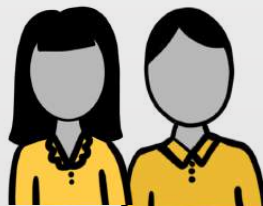
4 administrators
2 academic coaches

3 students
2 parents

We also found several other resources and programs to reach out to for inspiration, including:

- **Dartmouth Center for Advancement of Learning**
- **The Hood Museum's K-12 Learning to Look Program**
- **Dartmouth Center for Social Impact**
- **Hartford Career and Technology Center**
- **Dartmouth Education Faculty**

We wanted to reach out to these programs to better understand how organizations and programs might work with educators and things to consider when fostering these relationships. These conversations also opened up a plethora of new ideas and considerations, as well as leading to new connections to expand our knowledge base.

Including these additional resources, we conducted a total of 31 interviews.

RESOURCES

We took a deep dive into the following resources to understand the our challenge and the public school system in which we would be working including:

WCSU Resources
Strategic Plan
Portrait of a Graduate
School metrics (budget, graduation statistics)

Educational Research
Teacher motivation
21st century educational trends
Teacher professional development
Experiential education

Existing Online Educational Portfolios
Aminas High School in Colorado
High Tech High School

Articles on Remote Learning and Teaching
"COVID-19's Long-Term Impacts on Education in 2020 and Beyond" by Michael B. Horn
"I'm a Teacher and Remote Learning Scare Me" by Emily Kingsley
"This Is Not Normal—This is Crisis Schooling" by Sarah Gross

In addition to these documents, we examined WCSU board meeting minutes, local news articles, individual school profiles, the WCSU Formation Committee Final Report, Vermont-specific legislation and general public school data for high schools in Vermont and across the United States. These resources helped us gain knowledge about the context and environment in which we were designing a program in.

USER

OUR PRIMARY USER:
WUHSMS TEACHERS

Our first experience in WUHSMS left us inspired and energized. The projects and lessons that were occurring in the classrooms we visited were unlike anything our team had encountered through our own high school experiences. More importantly, the teachers were all incredibly committed to the success and autonomy of their students. This dedication was reflected in both the instruction we observed, and the philosophies we heard from teachers through our interviews.

CLASSROOM OBSERVATION: INSPIRED TEACHING

Mr. B ushered us into his middle school science classroom. After introducing us to the class, he turned to his students. "Today we are going to continue our introduction to chemistry. Last night, you read an excerpt from "A Short History of Nearly Everything" by Bill Bryson. Can someone tell me what surprised you from this reading?". Multiple students raised their hands and excitedly shared their thoughts. "I was surprised by the large scale of everything in the universe, and how small an atom is in comparison", one student said. Another jumped in, saying, "It's interesting that we can't see atoms, yet they make up everything around us". Several more students excitedly built upon each other's points.

As the discussion came to an end, Mr. B finally stood up from his perch on the edge of his desk. "Thanks for sharing guys. Next, I want everyone to take out a piece of paper and draw what you think an atom looks like". Mr. B turned to us and quietly said, "Since this is the first day of our chemistry unit, most of the students haven't seen an atom in a science text before. Still, they've probably seen drawings from things like cartoons, so I'm guessing they know more than they might think".

"I want my students to not just be prepared for life after high school, but prepared to be innovative and creative, chart their own course, and have the agency and control of what they do over their lives."
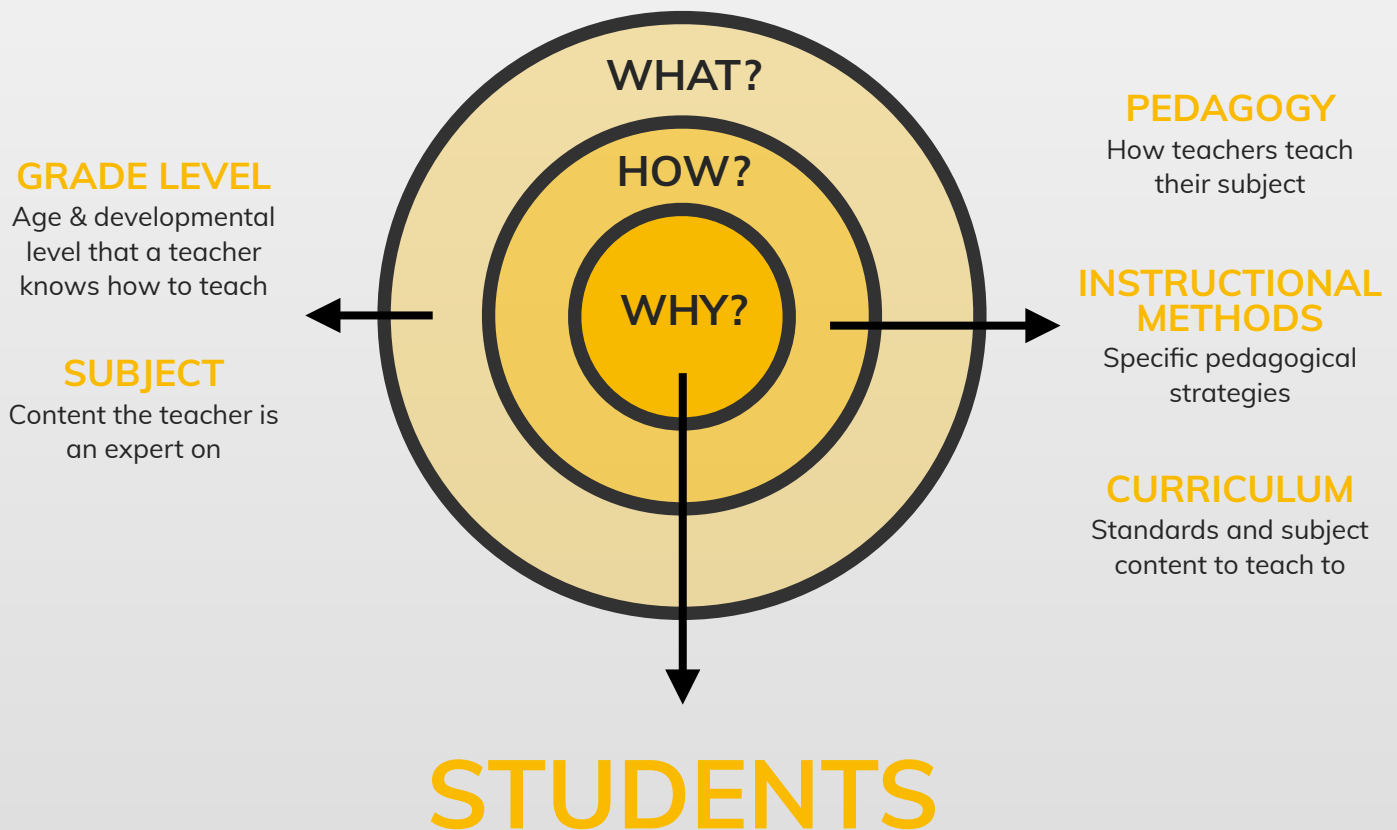
- Mr B, WUHSMS Teacher

INTERVIEW HIGHLIGHT: STUDENT-CENTERED PHILOSOPHY

Maybe it's been a while since we've been in 8th grade, but none of us could remember any of our middle school classrooms being so engaging and considerate of our own thoughts. As we spoke with more educators, we found many more like Mr. B. They all spoke of meaningful projects they had had their students work on, and how they designed their lessons with a focus on student choice. Overall, these conversations impressed upon the fact that students, and student success, are truly the most important parts of their profession. Thus, at the front of our minds in this challenge, is the student-centered motivation in all of our users.

"How do I know that my lesson was successful? The engagement of the students and the investment in their own learning."

- WUHSMS Educator

GRADE LEVEL
Age & developmental level that a teacher knows how to teach

SUBJECT
Content the teacher is an expert on

WHAT?

HOW?

WHY?

PEDAGOGY
How teachers teach their subject

INSTRUCTIONAL METHODS
Specific pedagogical strategies

CURRICULUM
Standards and subject content to teach to

STUDENTS

A TEACHERS'S "GOLDEN CIRCLE"

The "*What?*" and "*How?*" of an individual's profession may vary, but deep passion and purpose comes from understanding "*Why?*" work is being done. For educators, the "*Why?*" is clear. Students, and their success, are the reason for every dedicated teacher's work.

The idea of a Golden Circle comes from Simon Sinek's 2014 TED Talk.

BRIGHT SPOTS

We saw the same inspiring energy in several other programs that WUHSMS offers students outside the core academic subjects. Through these programs, students are able to explore their own interests through experiences like internships, independent study, design projects, and more[1].

C3 Office

The Center for Community Connections (C3) office offers personalize student internships, service learning experiences, and independent study opportunities. Each week, students attend their internships or work on their independent projects. Students fill out weekly journal entries and reflections based on their experiences. At the end of the term, students share their experiences through an event called "Presentations of Learning", which community members can attend.

1

Innovation Lab

2
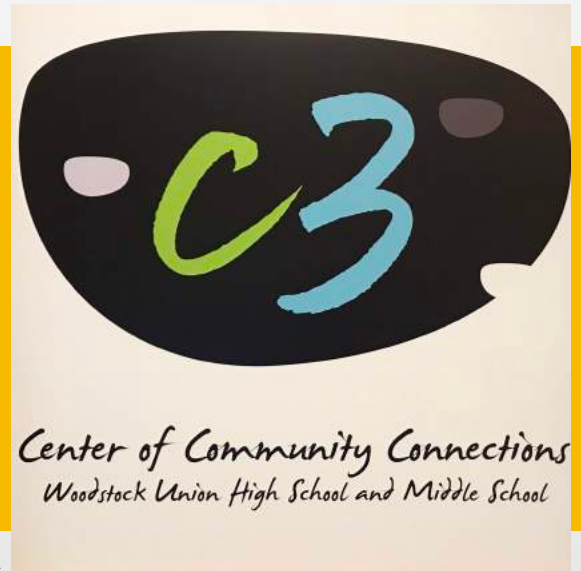
The Innovation Lab was created through a partnership with the NuVu Innovation School in Cambridge, MA. Every two years, a new fellow from NuVu joins the Innovation Lab in Woodstock to promote design, creativity, and vibrant technology use in student projects and research. Educators at WUHSMS can choose to partner with the Innovation Lab fellow to collaboratively design a course. This collaboration results in interdisciplinary project prompts which help develop student's creative problem solving and technical skills.

[1]WUHSMS School Profile: http://www.wuhsms.org/images/docs/WUHS_Profile_web_2019-20.pdf
[2]In Woodstock, High School Innovation Lab Teaches Constructive Failure: https://www.vnews.com/Woodstock-Union-students-put-engineering-skills-to-practical-use-with-playground-structure-21548896

HACTC

WUHSMS partners with the Hartford Area Career and Technology Center (HACTC) to provide students with applied learning and career skill development in industries like auto technology, graphic design, culinary arts, business administration and cosmetology. Students in this program spend a portion of the day at HACTC in Hartford, VT n applied learning classrooms or work with local businesses and organizations to gain on-the-job learning experiences.
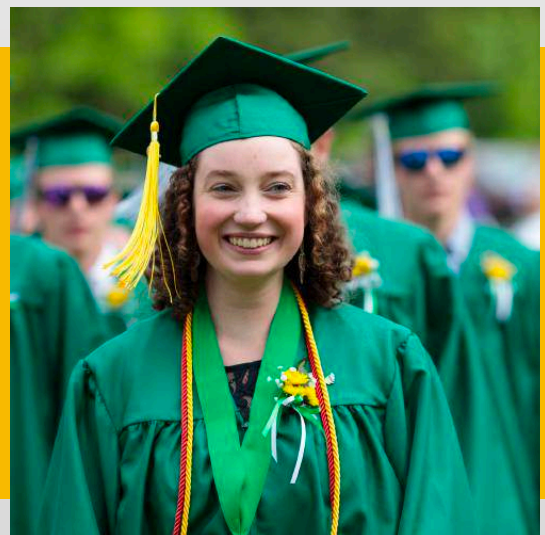

3

4

Elective Courses

WUHSMS also offers several elective courses for students, including courses in Computer Science, Agricultural Studies, and Theater. Experiential learning in these programs aim to provide "outside of the classroom" learning opportunities for students at WUHSMS.

Flexible Pathways to Graduation

To ensure equitable access to high school education for all students, WUHSMS offers several programs which allow students to learn outside of a "typical" classroom. These opportunities include independent studies, virtual high school classes, Vermont early college and dual enrollment programs, and study-abroad opportunities.

5

[3] Flavors of the Upper Valley: https://www.uppervalleyimage.com/events/134453/flavors-of-the-valley
[4] WUHS Greenhouse: https://sites.google.com/a/wcsu.net/wuhs-greenhouse/
[5] Woodstock Graduation: https://www.vnews.com/Woodstock-Graduation-2019-26234245

INSIGHTS

We highlighted several key insights from our research about the school district.

Insight #1

The WCSU district has required systemic structural changes, which have added **challenging complexity** to the school system.

We should find ways to work within or buffer the school district complexity, rather than adding to it.

WCSU administrators are working hard to establish the groundwork for the school district. The goals of the district—as outlined in the Strategic Plan—are ambitious, aligning with those of the most progressive schools in the nation. Many of these strategic points require adding **additional complexity to the activities of the school**, by implementing new programs or establishing new standards which require changes in teacher practice.

"Not everyone's on board with any initiative. It's tough because there have been a lot of changes in the last few years. This district is in real transition."

-WUHSMS Educator

While many of the educators we spoke to believe that the district's new guiding framework is positive, they are also aware of the resistance to change coming from a number of community members, including their fellow teachers. The process of figuring out what works can be challenging, and many of the recent changes in the district are overwhelming to a number of stakeholders. Thus, our program must be diligently prototyped and tested with our stakeholders to ensure that we receive their feedback early and often throughout our design process.

Change in a school takes time, and must be implemented through a number of small goals over a sufficient period of time for such initiatives to stick.

The transition to remote learning provided yet another unexpected transition for the WCSU school district. Having to immediately convert all forms of both learning and communication to an online format within an already rural community presented another boatload of design considerations and changes to a district already undergoing a lot of change. Many initiatives had to be put on hold and teachers, students, and administrators alike are uncertain about what their educational life will look like as the school district enters a new school year.

Keeping in mind this complexity, as well as the goal of the district to promote equity among stakeholders, a key property of our program must be its flexibility to work within or augment evolving relationships. As one educator commented:

"One thing I've learned about new structures is that if they are too rigid, they don't work in a school."

-WUHSMS Educator

Opportunities:

- **How might we leverage existing structures or programs to increase sustainability?**

- **How might we create an easy-to-maintain and flexible program that works well within existing structures?**

- **How might we create a clear implementation plan to make sure our idea doesn't fall through the cracks of the complexity?**

Insight #2

The benefits of new learning initiatives must **justify the use of limited resources**.

Teachers have so many things going on in their schedules, and they have to justify trade-offs when they want to try something new.
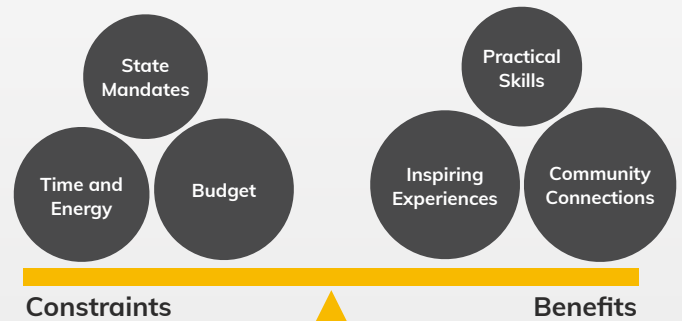
When we spoke with stakeholders we heard unanimous support for opportunities which would increase student success through new teaching methods. This is consistent with our research that shows the WCSU is committed to enabling their educators to teach relevant 21st century skills to their students in engaging ways. There are, however, state-mandated standards each school must meet which requires educators to balance implementing new curriculum or instructional methods with lessons that prepare students for standardized exams.

"We have a lot of great ideas, but *it's scary to implement something new* because you don't want to put students at a disadvantage for [standardized tests]"

- WUHSMS Educator

In several interviews our stakeholders remarked how busy and tired teachers already are. It is difficult for them to take time away from their classrooms because their students depend on their presence to have productive school days. With remote learning, teachers have even more demands on their time and energy. To teach from home, teachers have to learn new technological skills, re-design their curriculum, and often juggle additional challenges like child-care and limited internet connection. None of these are small feats, and would require enormous (and non-existent) personal and school resources to overcome.

Without adding remote learning into the mix, teachers were already worried that engaging with a new initiative will require a trade-off of resources that they are not willing to risk if the benefits don't clearly outweigh the costs. Adding in the constraints of remote learning creates a context where an initiative must provide even greater benefits for teachers to consider supporting it.

State Mandates

Practical Skills

Time and Energy | Budget | Inspiring Experiences | Community Connections

Constraints ▲ **Benefits**

The scale above shoes how teachers consider some constraints and benefits in pursuing any new initiative. In order to make sure our solution has a positive impact, we need to consider ways to have the scale tip towards the benefits, either by improving existing benefits or adding new ones.

Opportunities:

💡 **How might our solution reduce the feeling of trade-offs for teachers by mitigating losses, or enhancing gains?**

💡 **How might we incorporate new benefits like collaboration opportunities in our solution?**

💡 **How might we leverage existing resources to lower the barrier to entry of our solution?**

Insight #3

WCSU teachers **want more collaboration** time and opportunities with their colleagues.

Collaboration between educators greatly improve teaching outcomes, but teachers don't have enough time for it.

Collaboration is a key element of professional development that was highlighted throughout our academic research and interviews. For educators, collaboration helps to improve their teaching methods, to keep them accountable, and to make their work more active, passionate, and enjoyable. Currently, educators at WUHSMS have time blocked out in their schedule to meet with each other— allotted time that the administrators hope will allow for teacher collaboration.

However, we learned in our interviews that teachers use this time to tie up loose ends of the day or meeting with students.

"One of the key things that have enabled [teachers] to really change the way they educate students is collaborating with their colleagues, and we have so little time to do that."

- WUHSMS Educator

With other priorities and a maxed-out schedule, teachers require more structured opportunities for collaboration. While there are other opportunities like department meetings and teacher-team meetings, no educators in our research mentioned them being notable in terms of peer-to-peer collaboration. Only administrators believed ample time was being allocated for teachers to have dialogue and co-working experience.

"I wish we did more cross-department collaboration, it's quite minimal at this point."

- WUHSMS Educator

We created empathy maps to chart an emerging empathy gap between administrators and teachers. We found that, while both agree that collaboration is important to improve teaching methods, the time administrators have implemented to provide this does not seem to align with teachers' needs and capabilities.

In order to make sure teachers' voices are heard and needs are met, we must consider how our solution might be able to work with the administration to eliminate this gap and provide teachers with ongoing opportunities to collaborate and check-in with one another.

Collaboration in Remote Education

The necessity for collaboration is further increased in the remote learning environment. Teachers need the input and feedback from their colleagues in order to optimize their educational tactics online.

Opportunities:

💡 **How might we incorporate opportunities for collaboration between educators in our proposed solution?**

💡 **How might we encourage WCSU teachers to share best practices and effective techniques?**

💡 **How might we build a learning community culture in the WCSU district to encourage collaboration?**

Insight #4

Community connections **motivate** students and teachers by providing a real audience for their work and can help **increase engagement**.

We need to consider the priorities and needs of all stakeholders involved, and how we would create mutually beneficial partnerships.

When we first learned about externship programs for K-12 educators in our design research, the framework posed "one-way" relationships in which businesses and organizations would provide career experience for teachers, and then these teachers would take this career experience to help them adapt their curriculum to improve the learning of their students. As we interviewed WCSU educators and administrators, we began to find opportunities and even the need for community partnerships which could be increased through community visibility of class projects.

## *"There's a huge need for school and community partnerships."*

- WUHSMS Administrator

By getting students involved with community partners, educators believe that it will ground the learning in real life situations as well as spark curiosities for future careers. We also found that local business and organizations are actively searching for opportunities to work with local youth.

"Local organizations want to remain relevant to all Vermonters - not just adults. They see students as a lifeline to local youth."

- WUHSMS Educator

With the need for community members to participate more in the educational system of the WCSU we recognized key relationships that provided benefits to all three groups (teachers, students, and community partners.
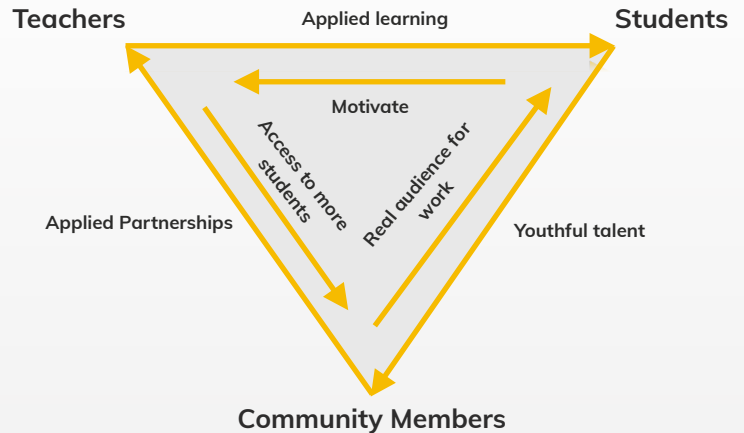
Left to right: When community members are able to provide teachers with partnerships that are rooted in the ability to provide real-work experience to students, teachers are able to provide students with applied learning. The engagement and inspiration that students are able to achieve from applied learning creates motivated young students who can serve as talent to local business both during and post graduation from the WCSU.

Right to left: Students motivate teachers to teach who in turn are able to provide the community with educated youth to enter the workforce and provide nuanced perspectives. The community serves as a real audience for student work, increasing each student's drive to succeed.

Opportunities:

💡 **How might we consider all motivations and needs for all stakeholders and design with incentives for everyone in mind?**

💡 **How might we incorporate new stakeholders like community members in a potential partnership?**

💡 **How might we create sustainable partnerships?**

WOODSTOCK

Was chartered by New Hampshire Royal Governor
Benning Wentworth in 1761. It was named the
Shire Town of Windsor County in 1786 and quickly
became a prosperous manufacturing and commercial
center. The town has been home to George Perkins
Marsh, environmentalist; Frederick Billings,
railroad empire-builder; Senator Jacob Collamer,
advisor to President Lincoln; and Laurance
Rockefeller, conservationist and philanthropist.
It was the birthplace of Hiram Powers, noted
sculptor of "Greek Slave." From 1826 to 1856, it
hosted one of only six medical colleges in New
England, the Vermont Medical College.

(Continued on other side)

SOLUTION

Our proposed solution, **Digital Hallways**, features three components for successful integration and is rooted in user research, feedback, and testing.

SOLUTION

Digital Hallways

Share amazing projects and creative lessons developed at WUHSMS in an **online portfolio system**

OVERVIEW

We were amazed by the student work and number of opportunities for students at WUHSMS, but we only found out about these things when we physically visited. An *online portfolio system* *could build WUHSMS's online presence and share student and teacher work with the greater community, especially in a time of remote learning.*

Before visiting WUHSMS, our group didn't what to expect from a small public school in rural Vermont. From various online articles, we had found out about the various issues that the new school district was facing, including budget and infrastructure concerns. Yet, during our first visits to WUHSMS, we were **amazed by the quality of work and number of opportunities for students**.

From the Innovation Lab, to the C3 Office, to the passionate teachers we were able to speak to, we were so excited about the clear passion that the teachers and administration had for students. But we would have never found out about many of these opportunities and student projects without actually visiting the school, and we wondered how many community members and parents were in the dark as well. From this realization, we saw an opportunity to capture that same feeling of excitement that we had visiting the school, but in a digital format.

Students already have to document their project work and create deliverables to submit for teacher review, but we found that most of these project materials are never used or visited again after completing the project. Teachers were also developing creative and impactful lesson plans, but did not have a way to share their plans with fellow teachers. It seemed that so much of the amazing student and teacher work did not exist outside the walls of the classroom.

Similar to how many people create online portfolios for their own creative work, we saw an opportunity for students and teachers to create online portfolios for their own work and classrooms. Students who completed an independent study, internship, or final project could proudly show off their work for future college and job applications. Teachers could share lesson plans and innovative work in a larger, connected teaching community and inspire other teachers. In total, we were able to come up with some types of portfolios that could be created:

1. **Student Portfolio** - Highlighting an individual student's projects, independent studies, and internships.

2. **Classroom Portfolio** - Capture lesson curriculum and student work for a particular class, with both teacher and student contributing as writers.

3. **Community Partner Projects** - Highlighting a community partner's partnership with a class

4. **Teacher Skill Share** - Sharing teaching tools and tips with other teachers and education leaders

With this idea in mind, we created prototypes using the popular blogging website **Medium** for user feedback and testing. Through several iterations, we were able to create a roll-out plan comprised of three components to lay the foundation for building an online portfolio system at WCSU.

Digital Hallways

To create a foundation for our solution to succeed at WCSU, we created the following three components.

Example Portfolios

Collection of examples and templates to guide users and inspire them to create their own

Resource Guides

Articles, videos, and best-practice resources to help users get started quickly

Online Community Hub

Connected website of portfolios and other online artifacts to increase visibility to community

EXAMPLE PORTFOLIOS

Summary: Create example portfolios and templates using Medium for students and teacher use cases

Goal: Inspire teachers and students to create their own portfolio, help stakeholders visualize what a portfolio could look like

Deliverables:
1) 6 example Medium portfolios
2) Templates for students and teachers

"Any examples or templates that you create could really help illustrate the online portfolio idea, and would help us get started."

- WUHSMS Educator

Many of our stakeholders were excited about the idea of creating prototypes for themselves and their classrooms, but then asked questions about how we imagined the portfolios would be used. And to be honest, we did not want to tell our stakeholders what their portfolio should look like and how it should be used. We found that to be the flexibility of a portfolio allowed users to tell the story of their work in **the way that they wanted to**, and this freedom to express their own **creativity and personality** motivated them to create a portfolio that they were proud of.

At the same time, the students and teachers still mentioned that any examples of portfolios, including templates and ways to use the portfolios, would be really helpful as they created one for themselves. From this feedback, we created several example portfolios and templates to highlight the different types of portfolios that we thought could be created (student portfolio, classroom portfolio, community partner project, and teacher skill share).

For some of the portfolios, we used existing projects or classroom lesson plans from WCSU to create a more detailed and meaningful example. For portfolios that we weren't able to find real information to use, we created "mock" students and classrooms, and showed the different ways that these mock portfolios might be structured.
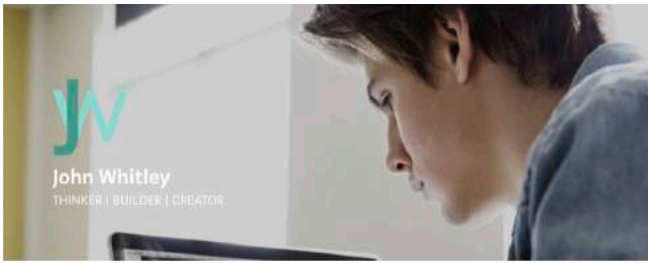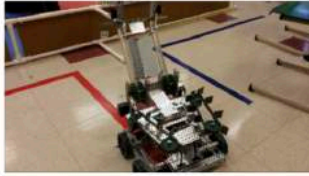
John Whitley
THINKER | BUILDER | CREATOR

Coding a MIDI Keyboard from scratch
As a keyboard enthusiast, I've became very interested in how MIDI keyboard are actually coded up, and thought it would be

RoGro: An autonomous robot for grocery sorting
Every week, my mom always asks me to get the groceries from

Student Name
A little bit about me!

This is an im
that showca
your persona

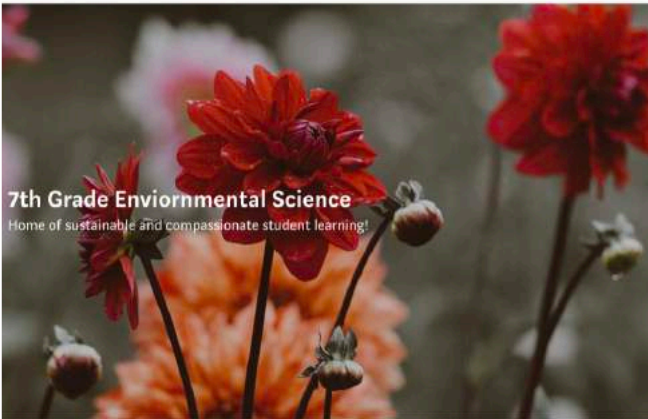ABOUT ME | MY WORK | REFLECTIONS | MY INTERNSHIP | DISTRICT

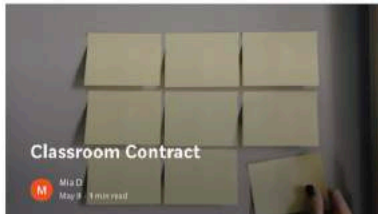My Work

Project 1   Project 2   Project 3

7th Grade Enviornmental Science
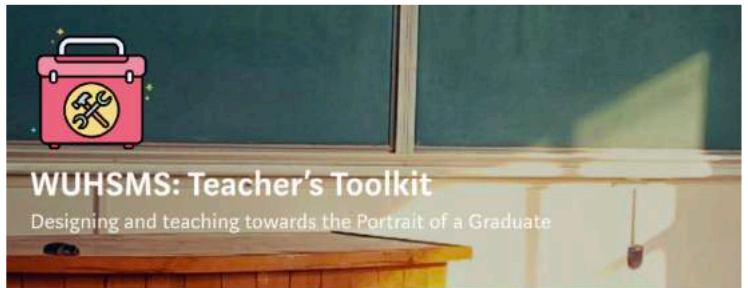Home of sustainable and compassionate student learning!

Classroom Contract
Mia D
May 8 · 1 min read

Wind Power Challenge!
Giovanni Boyle
Apr 29 · 2 min read

WUHSMS: Teacher's Toolkit
Designing and teaching towards the Portrait of a Graduate

Teaching Strategies

Public Product
Designing and learning for an authentic purpose and audience supports all areas of the PoG.

Critique, Revise, & Reflect
CR&R supports the PoG by developing Critical Thinking and Problem Solving, Skillful Communication, Self Direction, and Academic Excellence.

Student Voice and Choice
Voice and Choice supports the PoG directly by building Skillful Communication and Self Direction – if the goal is for students to share...
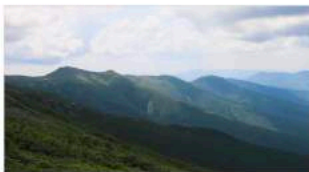

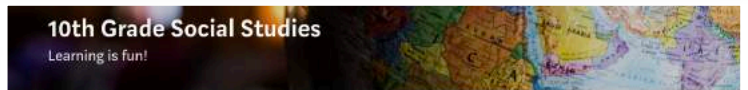**Julie B.**

Project Based Learning

Where I'm From
An Intergenerational Collaboration with Woodstock Union High

The Work of Centuries
A Collaboration with Woodstock Union High School & The

10th Grade Social Studies
Learning is fun!

OUR CLASS | STUDENT WORK | LESSON PLANS | DISTRICT
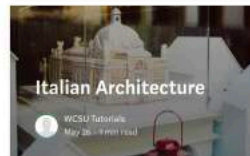
Italian Architecture
WCSU Tutorials
May 26 · 9 min read

Photo Essay—John
Team WCSU
May 26 · 1 min read

Community Partnership

Collaborating with Community
A story about building community

Learning Photography at a Local Art Gallery
This is the story of our collaboration with

Building Community
A story about building community

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RESOURCE GUIDES
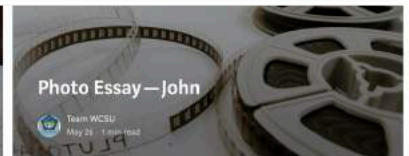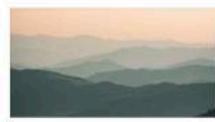
Summary: Create a collection of teacher and student specific guides and resources to creating a portfolio in Medium

Goal: Lower the barrier of entry to creating a portfolio in Medium, provide a foundation for stakeholders to use idea after project handoff.

Deliverables:
1) 5 written guides to using Medium in the classroom
2) 11 tutorial videos for WCSU students and teachers
3) Medium Publication to access all of the resources

"I think teachers get tired of reading long documents, we've found that short guides and videos are more engaging."

- WUHSMS Educator

After many of our stakeholders had positive reactions to our proposed online portfolio system, we still needed to help them get started in Medium and learn how to use the platform. We initially created written guides based on Medium's tutorials and help pages, but when we brought these initial written guides to our stakeholders, we were met with hesitation and skepticism. While they appreciated the detailed guides, the teachers and students told us that they were too long and wordy. From previous experiences, they told us that short articles, and videos were much more engaging and approachable when they were trying to learn a new platform.

From this feedback, we focused our efforts to create shorter and more succinct guides, as well as recording and editing 11 short tutorial videos to go over the process of creating a portfolio in Medium. Additionally, we thought of several other "helpful tips" articles to get students and teachers writing.

To organize all of these guides in one place, we ended up posting this information using a Medium publication, which can be accessed at https://medium.com/classroom-portfolios. By using a Medium publication, we hope that this resource can be shared quickly, as well as with other teachers and educators from other school districts across the world.

IDEA OVERVIEW

Overview—
Portfolios

Team WCSU
May 29 · 4 min read

GET STARTED GUIDES

Teachers!
Start here.

Team WCSU
May 27 · 2 min read

Students!
Start here.

Team WCSU
May 27 · 2 min read

11 VIDEO TUTORIALS

How to customize your class portfolio homepage
From Mia Drury

How to: Customize your home-page

to feature pages and navigation

to: Understand feature pages and navigation

Get Started in Medium
from Mia Drury

How to: Get Started in Medium

add navigation to your classroom portfolio

w to: Create navigation

HELPFUL ARTICLES

7 Ways to Use Medium in Your Classroom

Team WCSU
May 27 · 3 min read

5 Tips to Create an Awesome Portfolio

Team WCSU
May 27 · 2 min read

LIVE RESOURCE BANK

M

Portfolios in the Classroom!
Using online portfolios to build digital connections in education.

TEACHERS   STUDENTS   HOW-TO VIDEOS

ONLINE COMMUNITY HUB

Summary: Design an integrated website for WCSU to access portfolios and other online artifacts in an easy-to-access location

Goal: Build visibility of different portfolios and projects in a single online location for community members, students, teachers, and administrators to easily access and share work

Deliverables:
1) High-fidelity mockups
2) Interactive Figma prototype

"This is all great, but how will we make sure people actually see these portfolios? It would be a shame for them to end up in a dusty digital corner."

- WUHSMS Educator

With a collection of example portfolios and resource guides, we had a strong foundation to get students and teachers started in Medium. But we also wanted to address one of the concerns that many of teachers and administrators had during their feedback sessions—once there were multiple WCSU portfolios, **would there be a way to connect all of them**?

We agreed with our stakeholders, and we wanted to ensure that these portfolios did not end up in a **"dusty digital corner"** as one of the WUHSMS teachers phrased it. We explored different ways to link Medium portfolios, and ultimately decided that the best way forward would be to create a website that organized the portfolios in a custom way.

For the website, we wanted to create an **online community hub** that not only serves as a location to highlight all of WCSU portfolios, but also showcase community projects and recruit potential partners. We hope that an online community hub like this would get the local community more involved and up-to-date with WCSU. Additionally, we hope that it would promote collaboration between students and teachers, and help inspire others in their own passions and pursuits

Due to the scope of our project, we were not able to code a working prototype of our website. However, we created high-fidelity mockups and an interactive prototype for WCSU in the future, as they are currently looking at updating their school websites.

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WINDSOR CENTRAL SUPERVISORY UNION

HOME   ABOUT   PRE-K   SCHOOL BOARDS   NEWS   WCSU FACILITY ISSUES

WCSU
COMMUNITY PARTNERS

Building connections with our local community is especially important for grounding student education at WCSU.

- C3 OFFICE
- COMMUNITY PROJECTS
- BECOME A PARTNER!

RECENT PROJECTS

Where I'm From
An intergenerational collaboration with Woodstock Union High School's Structured Writing Class and the Thompson Senior Center

The Work of Centuries
An intergenerational collaboration with Woodstock Union High School's Structured Writing Class and the Thompson Senior Center

Narratives of Local Landscapes
A partnership between local landscape photographers and 11th grade English courses.

The Volume of Leaves
How many leaves fall from the trees in the center of Woodstock? A collaboration between the Woodstock Garden Club and 11th grade Calculus.

WCSU
COMMUNITY PARTNERS

Building connections with our local community is especially important for grounding student education at WCSU.

- C3 OFFICE
- COMMUNITY PROJECTS
- BECOME A PARTNER!

C3
CENTER FOR COMMUNITY CONNECTIONS

The Center for Community Connections (C3) office offers personal student internships, service learning experiences, and independent opportunities. Each week, students attend their internships or work their independent projects. Students fill out weekly journal entries reflections based on their experiences. At the end of the term, students share their experiences through an event called "Presentations of Learning", which community members can attend.

OUR LOCAL PARTNERS

- SUGARBUSH SKI RESORT
- JACK'S ST... BREW CO...
- CENTRAL VERMONT HUMANE SOCIETY
- DARTMOUTH COLLEGE

---

erested in partnering th WCSU? Let us know!

Organization Name

Email Address

Submit

WINDSOR CENTRAL SUPERVISORY UNION

HOME   ABOUT   PRE-K   SCHOOL BOARDS   NEWS   WCSU FACILITY ISSUES

WCSU
DIGITAL HALLWAYS

Welcome to WCSU's Digital Hallways, a platform to find what students and teachers are up to in the school district!

Community member? Get involved here!

Check out:

- STUDENT PORTFOLIOS
- TEACHER PORTFOLIOS
- COMMUNITY PARTNERS

FEATURED PROJECTS

Narratives of Local Landscapes
Mia D · Apr 28 · 2 min read

Sustainability in the classroom
Justin Lee · Apr 28 · 4 min read

Wind Power Challenge!
Glaucena Doyle · Apr 28 · 5 min read

WUHSMS: Teacher's Toolkit

WCSU
TEACHE PORTFO

Explore the work of our talented outside of the classroom!

- BY TEACHER
- TEACHING BLOG

WCSU
TEACHER PORTFOLIOS

Explore the work of our talented educators both inside and outside of the classroom!

- BY TEACHER
- TEACHING BLOG

TEACHERS

JULIE BRENNER
julie-brenner@wcsu.net
Classes:
Structured Literary
AP English

ANNIE PEARLMAN
a-pearlman@wcsu.net
Classes:
European History
American History

JAMES JORDAN
james-jordan@wcsu.net
Classes:
Physics 2
AP Physics

ADAM EICKLER
adam-eickler@wcsu.net
Classes:
Advanced Algebra
Geometry

DREW SAMSON
d-samson@wcsu.net
Classes:
Media and Film Studies
Intro to Communications

WCSU
STUDENT PORTFOLIOS

Student portfolios serve as a way for our high school students to showcase their accomplishments during their education at Woodstock Union Middle and High School

- 9TH GRADE
- 10TH GRADE
- 11TH GRADE
- 12TH GRADE

STUDENTS

JOHN WHITLEY
I'm really interested in computers, electronics, and robotics. One day, I would like to help design autonomous driving vehicles.

SARAH JOHNSON
I am interested in government and mock trial. In my free time, I create art from newspaper clippings. One day, I'd like to pursue a career in law

PETER SAMPSON
I am interested in engineering and biology. My favorite project at WUHS was building a robotic arm prototype. I'm interested in biochemical engineering

JAKE STEINMAN
I'm really interested in sustainability farming practices (grew up on a farm), and how technology will be used in the agriculture industry.

JENNY DRESSER
I'm really interested in studying art and film in the future, and in my spare time I love playing piano and the saxophone.

CALLIE ANDERS
I love working on creative projects, and am interested in exploring advertising and marketing in college!

SOLUTION SUMMARY

Through our **Digital Hallways** solution, we hope to create an online school community that allows students, teachers, and administrators to easily contribute their work to a larger conversation. Digital Hallways aims to open the relationship between a teacher and student through incorporating the community and peers as an audience. Teachers will create lessons that they are proud to share with the world beyond their classroom. Learning experiences will become more authentic for students when they can visualize the impact of their work. Community members in Vermont and beyond will gain insight to the type of work occurring in their local schools. For students and teachers alike, engaging with this solution has the potential to cultivate more deep and meaningful educational experiences, as well as connections with stakeholders outside of the classroom.
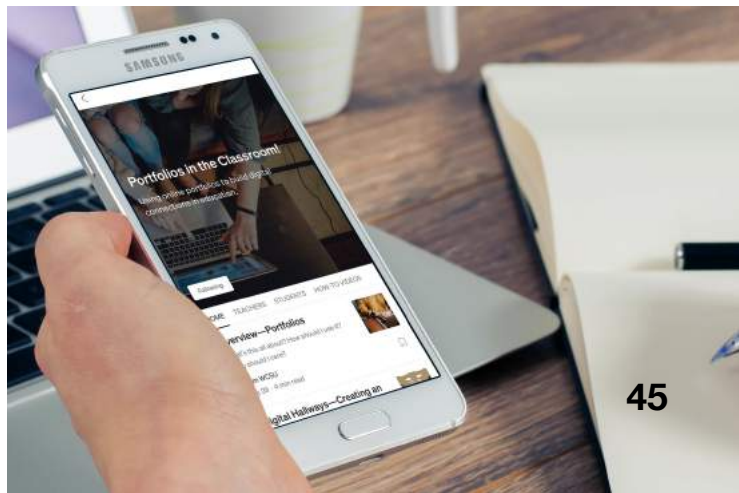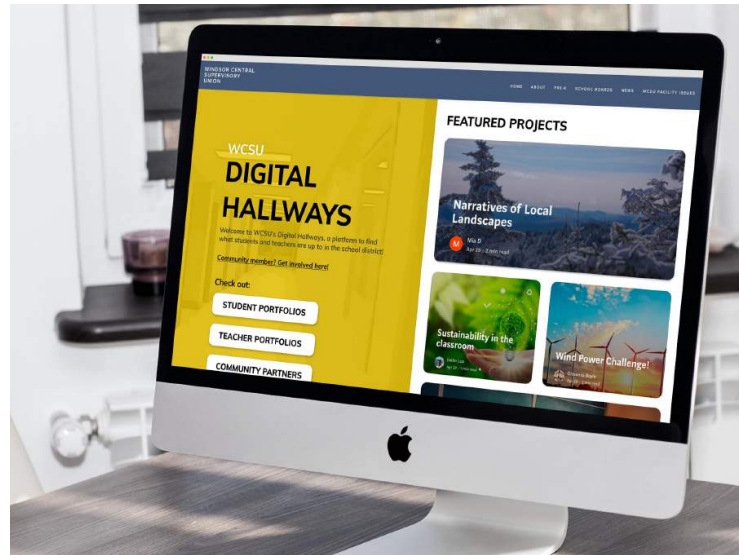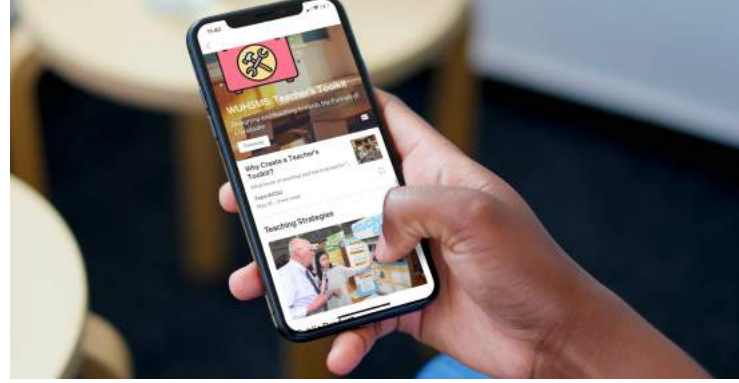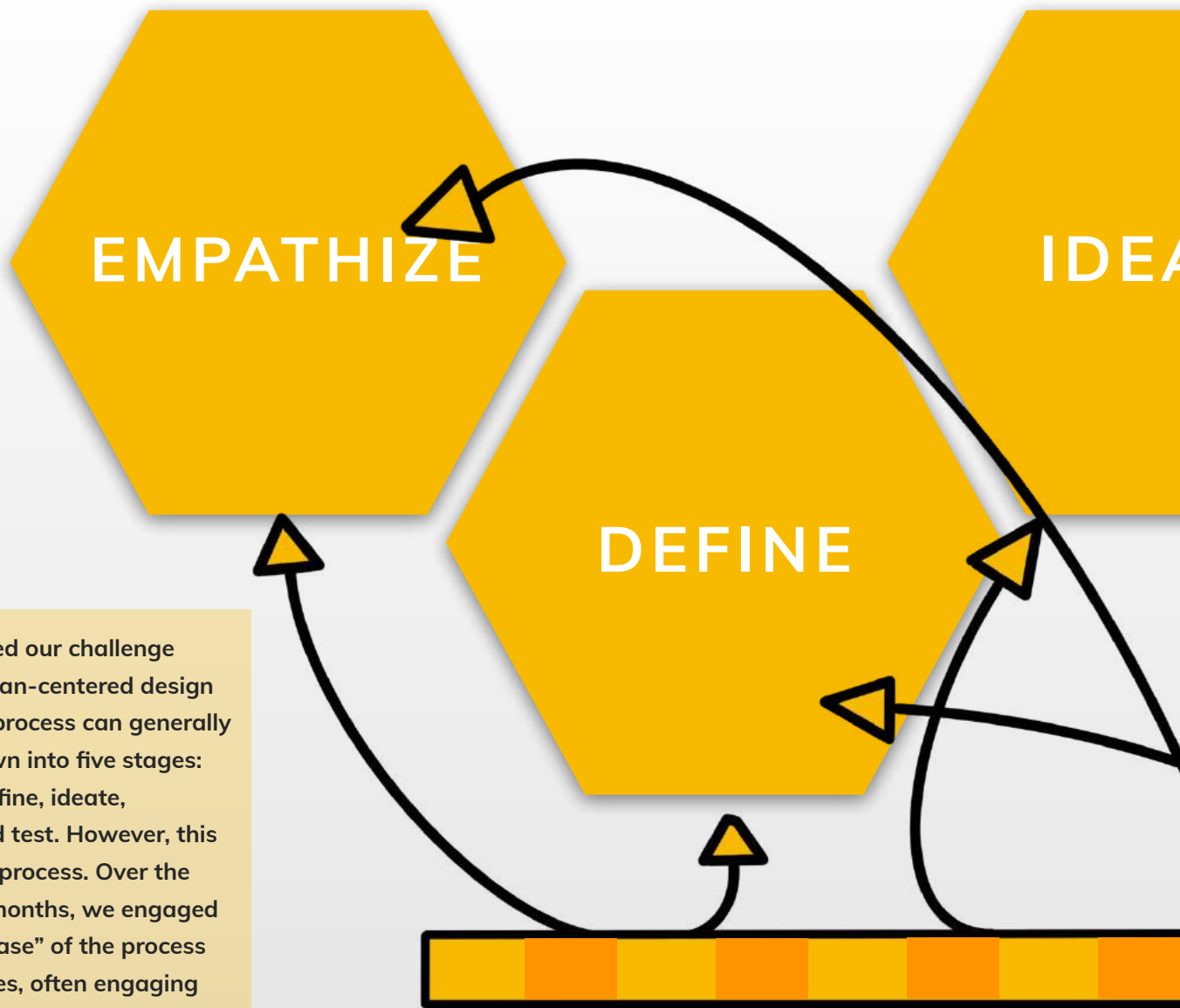
OUR PROCESS

How we got to our final solution from our initial problem statement. This section includes a detailed explanation of analysis, ideation, prototyping, and refining.

EMPATHIZE

DEFINE

IDEA

We approached our challenge using the human-centered design process. This process can generally be broken down into five stages: empathize, define, ideate, prototype, and test. However, this is not a linear process. Over the course of six months, we engaged with each "phase" of the process numerous times, often engaging with multiple phases at once.

EMPATHIZE

First and foremost, we had to continuously empathize with our users. In this phase, we conducted secondary research, user interviews, and field work. In our project, we navigated two major periods of empathy building. The first occurred at the beginning of the project as we sought to better understand WCSU and its stakeholders. We had to actively empathize (and research, and interview) again when the COVID-19 pandemic forced us and the school district to work and exist in an entirely new context.

DEFINE

In the define phases we used several tools to analyze our findings from empathy building. Many of these tools involve interactive white-board activities that help organize important quotes and bits of research. From this work, we defined our major insights which can be found at the beginning of this report. As with empathizing, we conducted two major periods of define work: at the beginning of our project, and after the shift to remote learning.

ATE

TEST
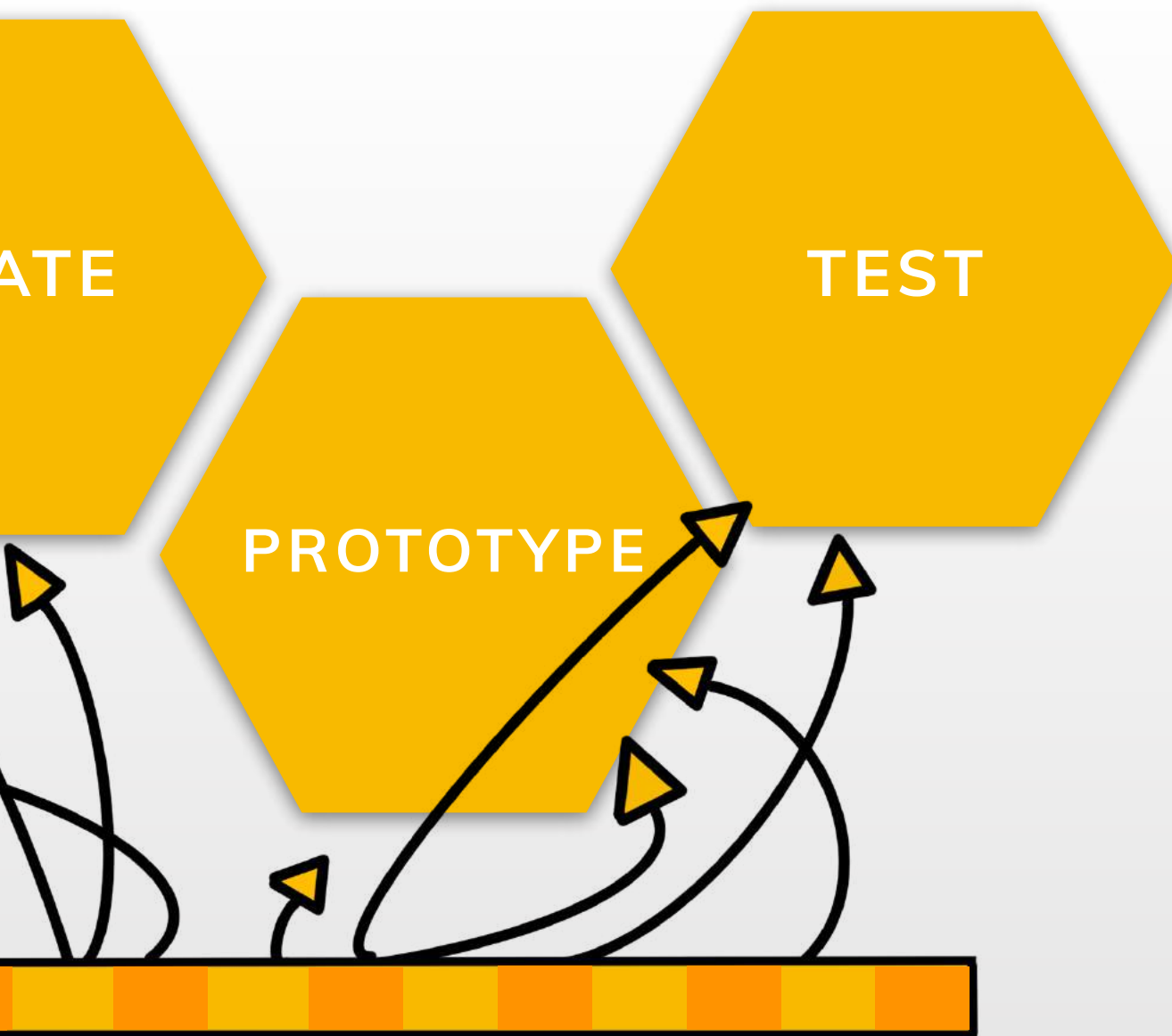
PROTOTYPE

IDEATE

Ideation involved brainstorming and defining a wide range of potential solutions. For us, many of our initial ideas would have required in-person prototyping, When our work became remote, we had to sideline many of these first ideas, in order to ideate on digital solutions in greater detail. Once we decided to go with the portfolio idea, we used ideation tools as we thought about different features of our solution.

PROTOTYPE

Prototyping involves creating quick, low-fidelity versions of your idea in order to receive feedback on its specific features or components. We conducted three rounds of prototyping. Each round addressed different questions and included different digital products on which we asked for feedback.

TEST

When we test, we try to understand if our prototypes are truly meeting our defined needs. Asking users for feedback is a great way to test if a prototype is effective. From that feedback, we can refine your idea. We conducted all of our testing over Zoom and Google Docs feedback forms. These sessions allowed us improve upon our prototypes in an iterative manner.

Teal notes (top group):

Staff turnover can hurt PD - takes time to develop teachers. —PB

Bad PD feels like extra burden —PB

Challenging to plan new things - what do you sacrafice? —PB

Wants more cross-dept collab —PB

Huge need for Community Partnerships —PB

D- grade on parent communication —S

Pa in lac

Less and less time for collaboration —PB

"parents don't care about the teachers" —S

Parents complain about early release + inservice days —S

[drawing of cart before horse] —S

"Scheduling is off" —S

can be difficult to connect curriculum to reality KR

Lectur are engagin

Hard to get students to stay in local area for work —H.L

"Teachers are totally maxed out"

Personalized learning plan didn't work —S.P

Administration puts me "cart before me horse" —S.P

Not referenc ing / utilizing POG in appropriate context —I.H

"guests coming in (to share) can be difficult" KR

Differentia in classro

Heteroge (ability classroor

Emphasis on college as goal - No support for other tracks —S.P

Teachers saying "this will be helpful in college"

Teachers "talking to the board" —I.H

Extra busy-work (journal, reflect) through C3 office —I.H

Very little school spirit —I.H

Not enough "outside the box" courses for students —S.P

Curriculum to prepare for jobs is not fully worked out AR

have not fully moved away from traditional → progressive

Newer teachers are more adept at project based teaching & individualization JS

State requirements → Constraint JS

difficult to make everyone happy JS

challenge to get all voices involved JS

Cost benefit of teachers missing face-to-face time for PD JS

Orange notes (bottom group):

We need students pl who are better problem solvers. —PB

"we have to respect people's lives" —S

Make it (PD) relevant to teacher. —MM

"I'd rather talk go through students" —S

Problem solving > analytical skills —PB

"how can we make [PD] feel less like a trade off" —MM

Reflection necessary to improve as an educator —H.L

small size - teachers know students well —S.P

Externships "transform a teacher's practice" —H.L

Teachers as facilitator rather than leaders —H.L

Best classes emphasize freedom + responsibility —SP~

"POG is very limiting" —S.P~

"pursuing passions is important" KR, JS

instructional coaches help teachers help students thru data analysis

Can offer young student minds as carrot for partnerships —H.L

Lot's of PD opportunities —H.L

Teachers have alot of time for collab

Important to know what school can

Learned really useful skills in internships —S.P~

"grow teachers grow students" (?) JS

nuth = ce-line local

artnerships Nat'l Park classroom teachers & students KR

students more receptive to open source grading b/c creates autonom AR

more autri curriculum In ndary cation JS

PD - pursu passions JS

g on nce -out calum JS

Pink notes:

Newer teachers are more adept at project based teaching & individualization JS

What is 21st century learning? AR

Work w/ existing structu —S.P

ormative/ mmative sessments

KR sends cold email uses connec & parents partner opportu

acking e to of rs JS

EAS

ANALYSIS

We analyzed our findings from stakeholder interviews and secondary research to define insights which would guide our prototyping.

USER PERSONAS

Personas help us understand our users and their needs. They are fictional representations that highlight the characteristics, motivations, and needs that we've uncovered through our research. We made personas for teachers, administrators, students, and parents. From these personas, we found that there are diverse perspectives within the school system. Since we are focusing on designing a program that will be agreeable to the entire school system, we must consider the unique challenges and opportunities presented by each persona.

Mrs. Pearlman   *Superstar teacher*

Role: WUHSMS English Teacher

Characteristics: Motivated, inspired, innovative

Wants: Learn innovative teaching methods, insight into real world careers, more collaboration time with colleagues

Concerns: Effectively inspiring and impacting all students in her classroom, meeting testing standards

Opportunities: Measures impact in students, collaborate with educators from all backgrounds, community partnership

Mr. Johnson   *Overworked and overwhelmed teacher*

Role: WUHSMS AP Calculus Teacher

Characteristics: Busy, stressed

Wants: Students to succeed and find fulfillment, work-life balance

Concerns: Already full schedule, implementing change requires trade-offs, meeting testing standards

Opportunities: Actionable next steps, keep teachers motivated to improve without overwhelming them
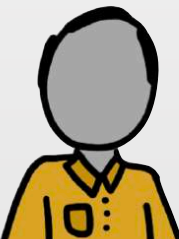
Mr. Meyers   *Caring school principal*

Role: WUHSMS Associate Principal

Characteristics: Big picture thinker, future focused

Wants: School district to be viewed positively by community, recognize and retain great teachers, celebrate student accomplishments

Concerns: Budget plans, logistics of new initiatives, test scores and graduation rates

Opportunities: Publicize student and teacher accomplishments, build community partnerships, low-maintenance and sustainable program

Bailey Williamson   *A+ student*

Role: 10th Grade Student

Characteristics: Self-motivated, high-achieving

Wants: Get into a great college, keep as many opportunities and doors open as possible

Concerns: Which AP classes to take, how to paint herself as an ideal college candidate, classes aren't that interesting but she needs them on her transcript

Opportunities: Take learning outside of the classroom, explore her passions before college, celebrate her accomplishments

Meryl Callahan   *Helicopter parent*

Role: Parent of WUHSMS 11th Grade Student

Characteristics: Concerned, overthinking, managing

Wants: Updates on how student is doing and areas for improvement, more opportunities for her son for a fulfilling education

Concerns: Where her son should go to college, whether her son will be able to enter a respectable and promising career

Opportunities: Show parents the awesome things that students are doing at WUHSMS

EMPATHY MAPS

We created empathy maps for teachers, students, and administrators, as these were the stakeholder groups with whom we had the most interaction. Empathy maps help us visualize what an individual (or stakeholder group) thinks, sees, says/does, and hears. These maps allowed us to synthesize a large number of quotes and observations, better understand the unique perspectives of each stakeholder, and identify any empathy gaps that might be important to our insights.
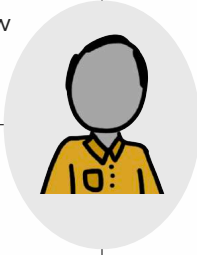
ADMINISTRATOR

SAYS

- "There's a lot of time for teacher collaboration"
- "PD is important"
- "Teachers are successful when they follow their passions"

HEARS

- Collaboration is important
- Pressure to enact items in Strategic Plan

THINKS

- Teachers need to develop 21st century teaching methods
- Some teachers need more help developing these than others

SEES

- Scheduled in-school collaboration time
- Maxed out teachers, resistant teachers, teachers eager for more

TEACHER

SAYS

- "My schedule is maxed out"
- "What we're really craving is more structured collaboration"

HEARS

- Teachers need to develop 21st century teaching methods
- Their curriculum should be nuanced and teach toward the POG

THINKS

- Collaboration improves teaching methods and student engagement

SEES

- Teachers as great support system for other teachers
- Teachers with other priorities
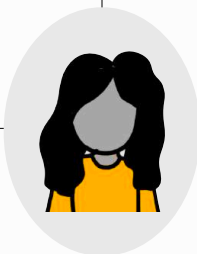- Budget cuts and declining enrollment

STUDENT

DOES

- Goes to class, does homework, participates in extracurriculars
- Plans and makes decisions to serve their passions and futures

HEARS

- "You should do x or y for college"
- All these new initiatives will make you better graduates based on the POG

THINKS

- New initiatives like POG are idealistic
- Some teachers are more engaging
- Individualization is needed

SEES

- Rural community as limiting
- "High" vs. "low" achieving students
- More push for college than careers

ECOSYSTEM MAP

To better understand how our stakeholders perceived their own position in the district, we asked several to create an ecosystem map of the school community. By piecing together these visuals and the corresponding conversations, we were able to create our own more comprehensive WCSU ecosystem map. We then went through a process of editing and refining the important relationships on the map to create an accurate visual aid to understand how the school system operates. Our current map helps us understand how a program or intervention for one stakeholder group might reverberate throughout the school system and affect a wide range of individuals in the community.

MAPS DRAWN BY STAKEHOLDERS
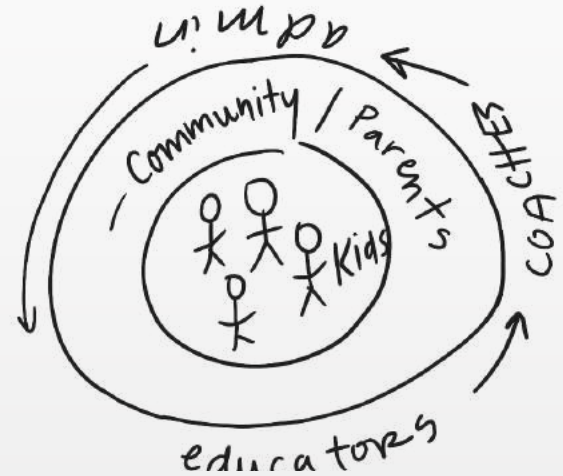

OUR ECOSYSTEM MAP OF THE WCSU

### STRATEGIC PLAN + PORTRAIT OF A GRADUATE
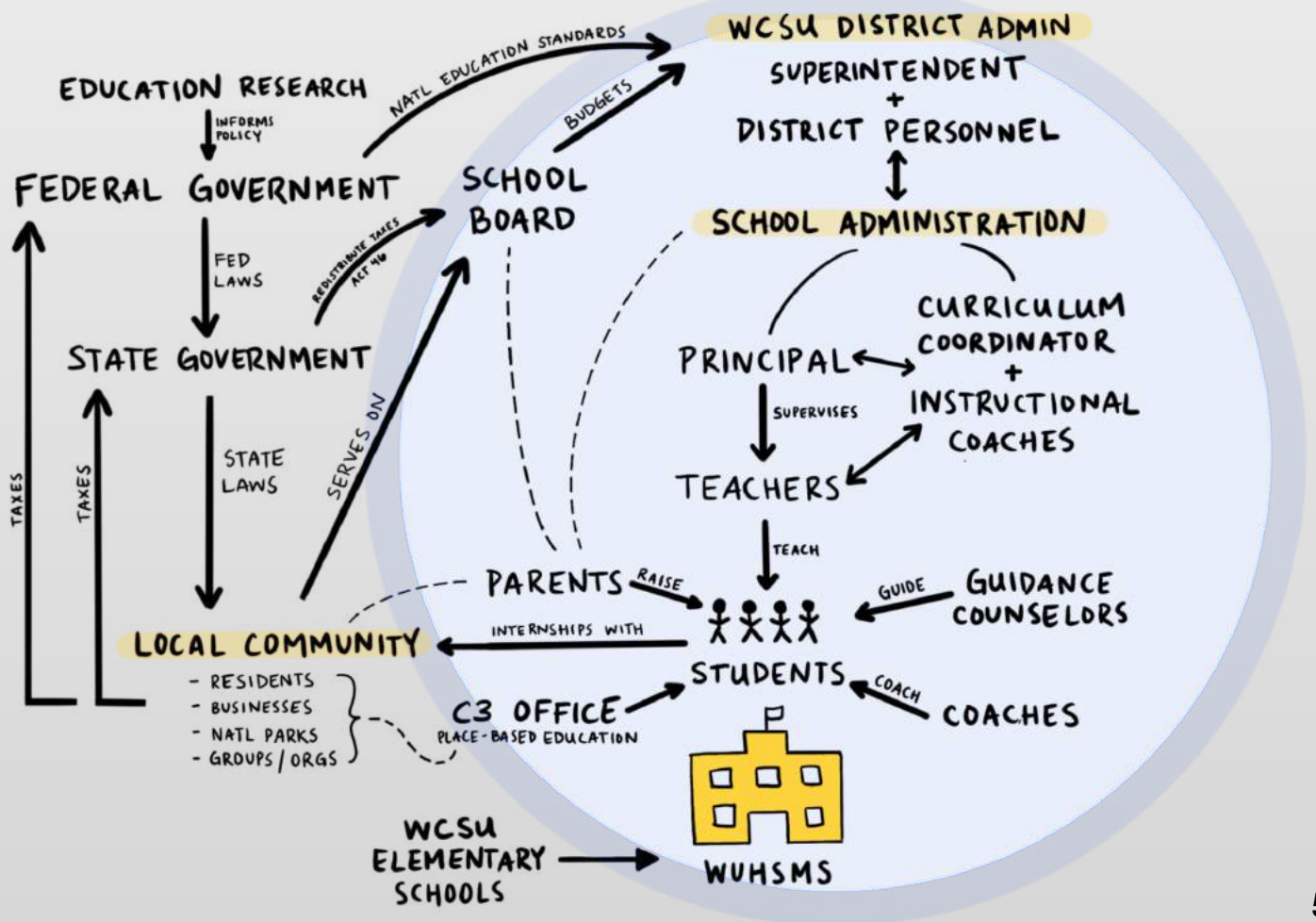
STORYBOARD

We created a storyboard to describe the process for students and teachers to contribute work to a portfolio, with an eye toward building community partnerships. User journeys allow us to visualize (through drawing), and communicate (through text), the behaviors or thoughts of a user as they engage with our solution. This tool can also be used to communicate an idea to an audience in a concise and compelling way.
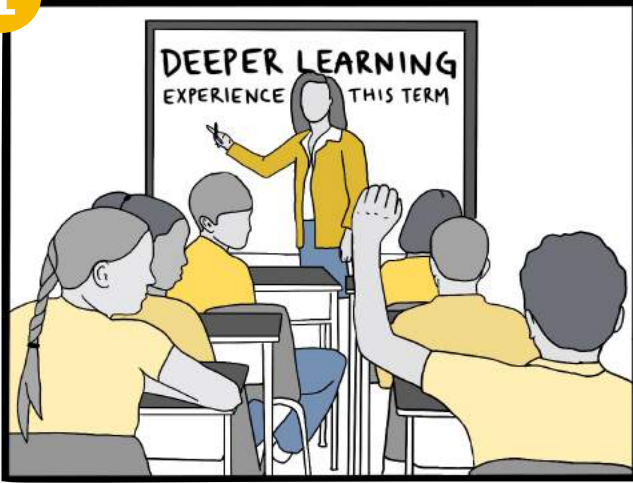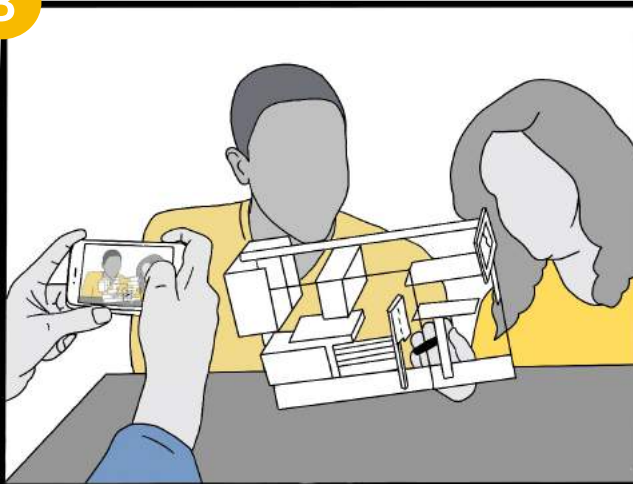
Mrs. Pearlman, a 10th grade social studies teacher, presents her class with a deeper learning experience exploring and modeling modern architecture.
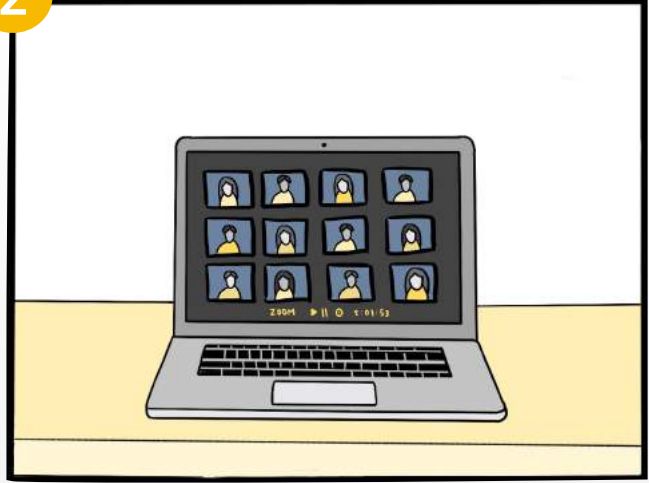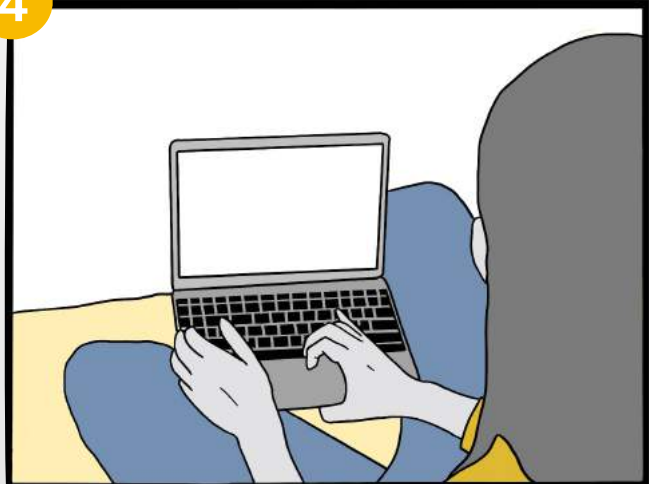

If she is teaching remotely, she can also present this lesson online over a Zoom class.

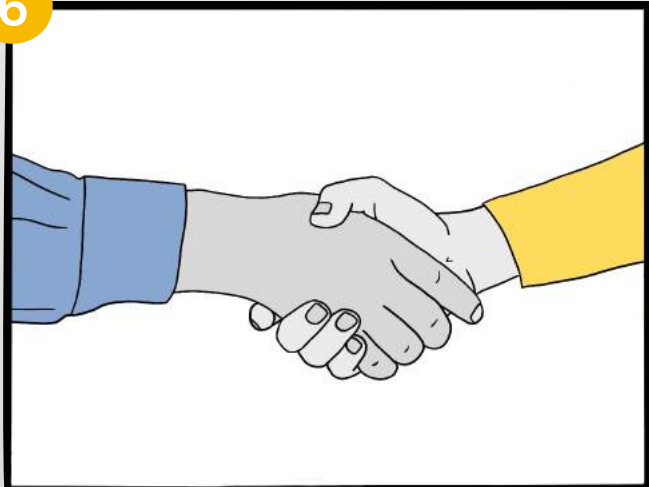Mrs. Pearlman's class spends the term learning, creating, and documenting their process.

The students use that documentation to create portfolios, showcasing their work in an online platform that can be shared with the whole community.

The community is now able to see and engage with student work. They can honor their progress and be inspired by finished products.

A local architecture firm sees the class's work and reaches out to partner with Mrs. Pearlman to connect her students with real-world architecture experience.

POV STATEMENTS

To better understand the needs of our users, we created Point Of View (POV) Statements for each of our main users. These statements helped us understand how the needs of our users might actually provide opportunities for mutually beneficial relationships, especially during remote learning. Typically, these statements outline the users, their needs, and why they have those needs.

WUHSMS Educators	Students	Community members
NEED	**NEED**	**NEED**
to collaborate with the local community on learning experiences	engagement with real world experiences and audiences	opportunities to interact with student work
IN ORDER TO	**IN ORDER TO**	**IN ORDER TO**
motivate students by relating their curriculum back to the real world.	understand how their learning can have a meaningful impact on the world.	recruit new talent and encourage the youth to stay in the community.

"no follow up"

"a lot of time to work together and share ideas"

"the structures to implement it aren't there, so it feels like there's pressure or expectation to meet that's impossible"

"it's been a lot of upheaval"

variety of classroom activities + student

IDEATION

We conducted brainstorming sessions to come up with a range of potential solutions. We narrowed down our ideas based on their ability to meet the need for community alliance, technical feasibility, and user feedback.

"Reverse" externship

C3 teacher mentors

DARTMOUTH x WCSU?

DDC feedback for innovation lab students

reverse job fair (teachers/students market themselves)

WUHSMS ~Marketing~ campaign

in for high school students

teacher learning community

ONLINE PORTFOLIO SYSTEM

co taught classes

TEACHER

STUDENT ⇄ COMMUNITY

teacher shadows student internship

1 The teacher advises the student on a project.

2 The student is engaged and successful in their project.

3 The student documents their work in a blog post.

4 Community members are able to see accomplishments.

5 Other students and teachers are inspired by the student's project.

6 The student gains an impressive portfolio piece.

Our other ideas:

Incorporate teacher mentorship in the C3 office

Create a reverse externship program

Build a partnership between Dartmouth education students and WCSU teachers

Our online portfolio idea originated from a range of solutions geared toward building community partnerships. While we came up with almost one hundred ideas, by the end of our second month of the project, we had focused in on four initial idea sketches. Three of these ideas were in-person experiences involving community partners, with the intention of prototyping such an experience during the second half of the project. One of the ideas however, was to build an online portfolio system. This type of system would intentionally build community partnerships, allow students to engage in portfolio-building learning experience, and create incentive for teachers to design lessons with portfolio-able deliverables.

CHOOSING MEDIUM

But how would we bring this idea to life? Due to time constraints, our own technical skills, and the technical skills of our clients, we decided that leveraging an existing platform would be far more feasible than developing our own platform from scratch. We analyzed several existing website-building and blogging platforms to see if there was a potential framework that we could adopt.

PORTFOLIO PLATFORM ANALYSIS

	NAME	EASY TO LEARN	GET WRITING	CUSTOMIZABLE
	Squarespace	★★★	★★	★★★
	Wix	★★	★★	★★★★★
	Wordpress	★★	★★★	★★
	Weebly	★★	★★★	★★★
	Medium	★★★★	★★★★★	★★

From this analysis of platforms, we ultimately decided that "Easy to Learn" and "Get Writing Quickly " were the two most important aspects of our platform. Prioritizing these specification led us to choose Medium as our platform. Medium is a popular blogging website where millions of users from across the world already share stories about the news, hobbies and passions. It's platform is free (for non-members) and easy to use to create content (stories). Within Medium, we found plenty of opportunities for creativity and flexibility. While many people use Medium to read and publish stories, we found a few users who had used it in more innovative ways to create their own portfolios. All of the portfolios in our solution are built using the "Publications" feature, which allows users to create a magazine-style web space to house a collection of work — in our case, portfolio pieces.
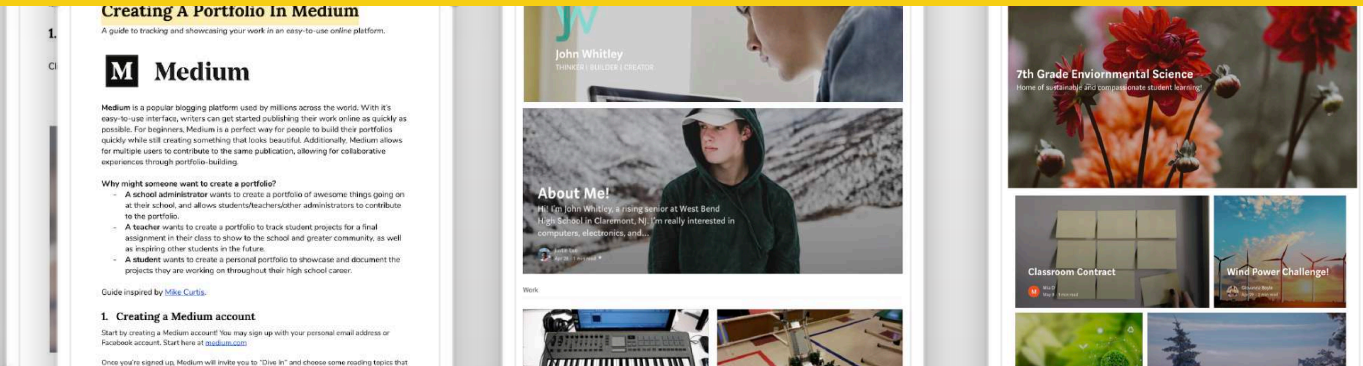
PROTOTYPING

We refined our idea through three rounds of prototyping, user feedback, and iteration.
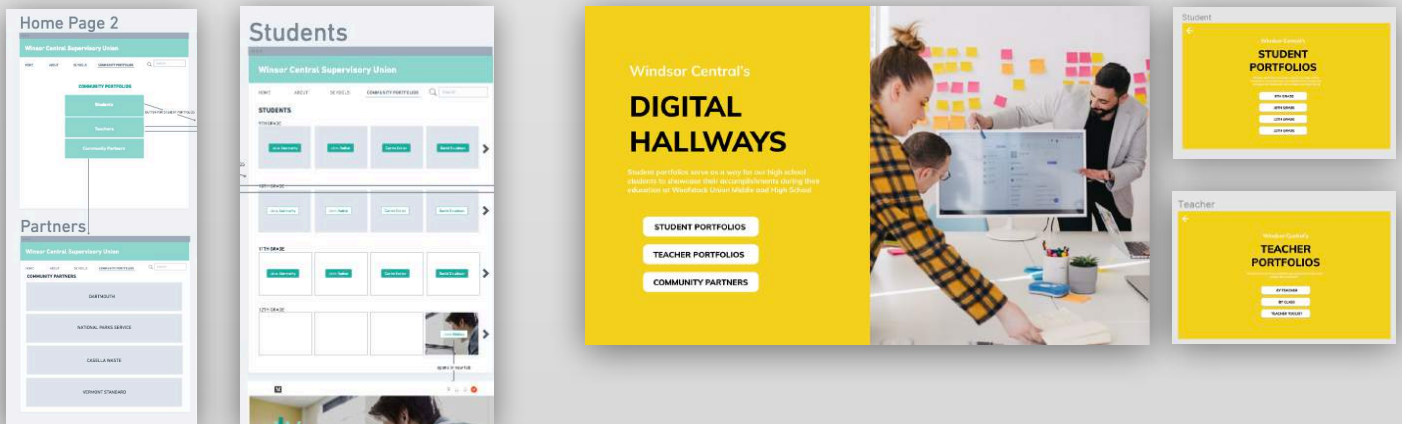
PROTOTYPING SNAPSHOT

To ensure our portfolio system met our solution specifications, we developed a series of prototype sets. For each set of prototypes, we conducted and analyzed multiple user feedback sessions over Zoom. Ultimately, these three rounds of prototypes culminate in our final, three-pronged solution.

Our initial rounds of prototypes involved creating example portfolios for students and teachers. As we received user feedback, we learned that students and teachers would need more information and justification to get started building their portfolios.

⏱ **2 weeks**   👥 **6 Feedback Sessions**

In our second round of prototypes, we iterated upon our portfolio examples, expanding upon both the types and quantity of portfolio prototypes. We also began building out resource materials for teachers and students. We learned we should think about how we might best connect all of these portfolio examples for greatest visibility within the community.

⏱ **2 weeks**   👥 **5 Feedback Sessions**

As we refined the portfolios themselves, we began thinking about how to connect them for greatest visibility within the school and its community. Our third round of prototypes involves several iterations of an online community hub. We learned that we should create additional resources, and continue to refine our Digital Hallways idea.

⏱ **2 weeks**   👥 **5 Feedback Sessions**

ROUND 1

In our first round of prototyping, we built example portfolios for both students and classrooms. The purpose of these examples was to provide our users with an idea of the layout and contents of each type of portfolio in order to receive feedback on whether the idea would be utilized. For the content of these prototypes, we used fictional personas and projects. We organized the content similarly to how one might display a professional design portfolio.

We also shared examples of existing portfolios from other high schools. The purpose of these examples was to provide users with a comparison between the 'state of the art' and our prototypes.

Student examples: Animas High School (http://animashighschool.com/digital-portfolios/).
Teacher examples: High Tech High School (https://www.hightechhigh.org/student-work/student-projects/)

USER TESTING

We conducted 6 total feedback sessions during this round of prototyping.

For student feedback sessions, we initially worked with two WUHSMS juniors, and one senior. All three students are high-achieving, active members of the school community. Each had previously, or was concurrently enrolled in either independent study courses or C3 office internships. These students represent a small population of students who would be most likely to self-motivate in creating a personal portfolio. We conducted three total feedback sessions with students. The first two sessions were used to gauge interest from students about the idea of actually building a portfolio in Medium. The following are examples of the types of questions we used in the first two sessions:

How would you use a portfolio like this? How would it benefit you?

How would your peers use a portfolio like this?

How would you see teachers using this type of portfolio?

The final session (with two students), was spent getting started building personal portfolios, and receiving feedback on the set-up process. Students were able to create a Medium account, and attempted to create a publication.

During this portfolio building session, we also received feedback on our resource guides. We asked:

> *What do you think about the level of detail/ information in each section of the guide?*
>
> *What format do you prefer for instructional guides?*

For teacher feedback sessions, we asked similar general questions such as:

> *How would you use a portfolio like this? How would it benefit you?*
>
> *How would your colleagues use a portfolio?*
>
> *How do you see students using a portfolio?*

We also asked the same specific questions about the "getting started" guides as we asked students.

LEARNINGS

Using Medium
Both students and teachers were excited about using an existing, interactive platform for portfolios. As one teacher said, "the people at medium.com have made all this stuff...and we can use it!". Leveraging an existing platform also ensures consistency across portfolios, allowing for easy trouble-shooting and a consistent visual theme.

Finally, there are less technical skills to learn for a platform that is designed for writers and content creators (rather than website developers). This ease of use is a key priority that we were sure to emphasize moving forward.

Building community
Both teachers and students emphasized the continued importance of community visibility. As one educator said "You can know the school, talk to the administrators, and walk the hallways, but until you get into the classroom and talk to students, you won't see what students are doing". They went on to say that, with the shift to remote learning, the opportunity to see student work outside of their own class has greatly diminished. Students too, felt that seeing the work of their classmates would be motivating and inspiring.

Community visibility could also be used to help build and sustain collaborative, community-based learning experiences. From one educator, we heard the idea of "pairing a teacher and community member to develop a learning experience with a final project that gets published in a portfolio". Collaboration could also occur between students, between a student and teacher, or between students and community partners. Creating Medium stories could be done collaboratively both over google docs and through adding editors and writers to a Medium publication.

STUDENT PORTFOLIO

Writing Your First Story

Now let's start adding stories to your portfolio on Medium!

If yo...

1.

Clic...

You...

Creating A Portfolio In Medium

A guide to tracking and showcasing your work in an easy-to-use online platform.

Medium

Medium is a popular blogging platform used by millions across the world. With it's easy-to-use interface, writers can get started publishing their work online as quickly as possible. For beginners, Medium is a perfect way for people to build their portfolios quickly while still creating something that looks beautiful. Additionally, Medium allows for multiple users to contribute to the same publication, allowing for collaborative experiences through portfolio-building.

Why might someone want to create a portfolio?
- A school administrator wants to create a portfolio of awesome things going on at their school, and allows students/teachers/other administrators to contribute to the portfolio.
- A teacher wants to create a portfolio to track student projects for a final assignment in their class to show to the school and greater community, as well as inspiring other students in the future.
- A student wants to create a personal portfolio to showcase and document the projects they are working on throughout their high school career.

Guide inspired by Mike Curtis.

1. Creating a Medium account

Start by creating a Medium account! You may sign up with your personal email address or Facebook account. Start here at medium.com

Once you're signed up, Medium will invite you to "Dive In" and choose some reading topics that interest you. At this point, just select at least three topics (these can be changed later), and Medium will curate a selection of articles based on your interest.
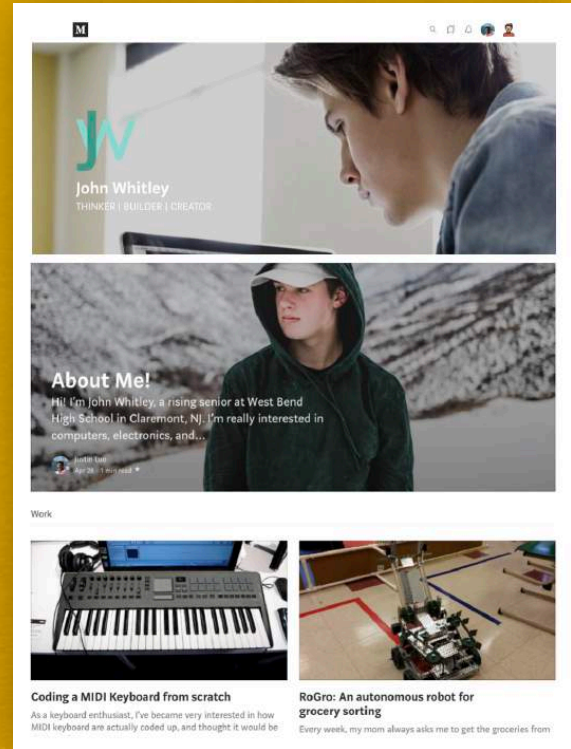
2. Updating your profile

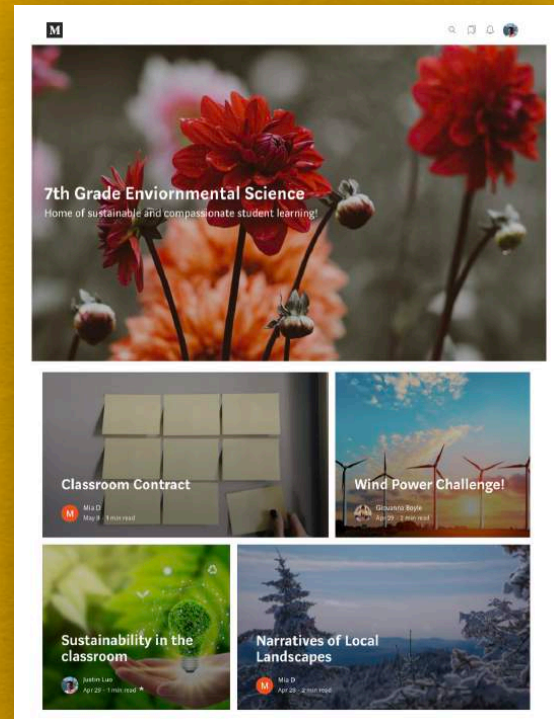Enhancing your portfolio is a great first step for any existing or new Medium user.

Click on your profile avatar image at the top right, click **"Profile"**, then on the next screen, click **"Edit Profile"**.

WRITTEN GUIDES

CLASSROOM PORTFOLIO

Student Portfolios

Students were enthusiastic about the idea of building their own personal portfolio for two main reasons: First, building a personal portfolio would allow students to take ownership over their work. Students would rather be asked to "please showcase your interests", rather than creating something according to a rigid prompt or structure. Second, portfolios in Medium look "sleek and professional", without requiring students to navigate an overwhelming number of customization tools. This visual appeal allows students to feel good about showing their portfolios to future colleges or employers.

However, we also encountered issues of student motivation and privacy in our feedback sessions. The students we spoke with were interested in working with us due to both curiosity, and the desire to showcase their class work in a new way. Their peers, however, might "not be interested" in building a portfolio, especially if it was framed as an extra class assignment or if they not have worked on the types of projects which could be shared through a portfolio. Thus, we should frame the personal portfolio as an opportunity for students to both proudly own and display learning to a wider audience on a polished platform. Teachers must also work to design learning experiences with deliverables that could be displayed through portfolios

On the issue of student privacy, we heard that privacy laws state that schools must obtain parent/guardian permission before requiring students to share certain identifiable information online. Thus, moving forward, we should create a consent form for students if they are creating online profiles.

Classroom Portfolios

Like students, teachers appreciated the simple visual appeal of Medium portfolios. Additionally, they felt that engaging in the portfolio-building process would help with documentation of class and student work. On this topic, one teacher commented, "I really struggle with that as a teacher, I think it's on my list of things to improve". This teacher said that building a portfolio like the one we shared would help them improve upon this weakness. Finally, teachers loved the idea of building a portfolio in collaboration with their students. Teachers could see themselves adding students as writers to their publication, and having students contribute stories to their collection.

Getting Started Resources

We learned that both students would prefer shorter documentation separated into manageable, easy to digest steps. We also learned that initial set up for students is relatively quick and easy (~20 minutes), but that publication restrictions in Medium prevent users from starting a publication within the first few days of creating their account.

ACTION STEPS

Continue to develop both portfolio ideas
1. Use real teacher and student work to provide examples
2. Build templates for student and teacher portfolios

Continue to develop resources
1. Create "getting started" guides specific to students and teachers
2. Develop a consent form for student privacy

ROUND 2

In our second round of prototyping, we focused on building out additional types of portfolios. We created new Medium portfolio prototypes for community partners and teacher skill-shares. For the teacher skill-share, we transferred information from the WCSU "Project-Based-Learning Toolkit" (a comprehensive workbook created by WUHSMS educators to help teachers get started in project-based learning), to a Medium publication. Additionally, one of our stakeholders generously provided examples of real, community based, work to include in a prototype. With this, we were able to iterate upon our teacher portfolio idea. Finally, we iterated upon our resource bank, adding a consent form to address student privacy concerns, and additional detail in the getting started guides.

USER TESTING
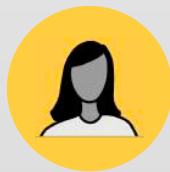
Students were unable to participate in this round of user testing due to AP exams. However, we were able to speak with more teachers and administrators, conducting five testing sessions with four teachers and one administrator. When we spoke with teachers, we welcomed general feedback on our examples. We also asked several more specific questions:

> **How do you see yourself using this? Walk me through step by step.**
>
> **How do you see students using this -- again, step by step walkthrough?**
>
> **How might we best invite teachers to contribute to this effort?**

When we spoke with administrators, we focused the conversation on big-picture issues, asking:

> **How do you see this solution fitting into district culture?**
>
> **Walk me through how you would sustain this solution moving forward?**

LEARNINGS

Portfolio Examples
Overall, teachers and administrators were excited about the idea of creating multiple levels of portfolios across the district. The administrator we spoke with said, "I love the idea of making layers of portfolios, student level, classroom level, school level". Teachers also liked the idea of creating a space for collecting featured stories, projects, and community partnerships, and wondered if this could be a part of our solution moving forward.

All of our users brought up the idea of collecting portfolios on the district website (or some other, accessible space), so that the work would have increased visibility in the community. One use of this website might be to share student and teacher work with school board members.

Teacher Usage
When asked to provide specific details about how they would use a classroom portfolio, all of the teachers we spoke with described an interesting lesson they had previously created which they could envision displayed through a portfolio. One teacher commented that they would usually share this work on the walls of the school hallway, but that an online portfolio would allow for greater potential engagement with the public. Another teacher said that they could transfer work from multiple previously published Google sites to a single Medium publication. Collecting all of their online work in one location would make it easier to share with a wider audience.

"I could see myself using it to document process along the way, have a community partner collaborate online to see what we've been doing, and then end up with a capsule of a deeper learning experience *as a nice exemplar on our district website to show our community."*

The administrator we spoke with was optimistic about the potential of this range of portfolios, saying that, "middle school and high school teachers would love to get their student work on here". Additionally, they could see portfolios addressing multiple district needs of cultivating community visibility, supporting teacher collaboration, and increasing student engagement and skills online.

With this optimism, however, came realism about the current capacities of district staff. As we learned through our research process, teacher time is in short supply, particularly during remote learning. Thus, we should continue to focus on providing plenty of resources to lower the barrier to entry to portfolio building. Finally, the administrator wondered if there might be a way to recruit new community partners on a widely visible platform.

Resources
Users liked that we are thinking of how to package a solution that will sustainable once we finished working with the district — a challenge for many initiatives in the district, even when they come from within the system. In our feedback sections, teachers emphasized that initiatives are met with the most success if they are presented with clear purpose and supporting documentation with detailed plans to achieve success.

TEACHER PORTFOLIO

TEACHER SKILL SHARE

COMMUNITY PARTNERS

We should also continue to be mindful of school politics as we onboard our solution. Specifically, we should provide ample justification for how the idea fits into big picture goals like the portrait of a graduate and supporting student success. As one teacher put it:

"The closer you tie it to the POG the better chance of success and understanding it will have."

To increase teacher buy-in, teachers suggested that we create a short introduction video to explain and justify the idea of classroom portfolios. Additionally, providing plenty of portfolio examples (especially ones created from real teacher work), would allow teachers to more easily see their potential benefits. Finally, we should think about how to best present information in our resource documents in ways that are specific to both student and teacher audiences.

NEW IDEA

As mentioned in the learnings section, many of our users wondered how community members would se these portfolios. One teacher commented:

"This is all great, but how will we make sure people actually see these portfolios? It would be a shame for them to end up in a dusty digital corner."

For us, this comment really drove home the need for us to design a way for student, classroom, and community partner portfolios to be connected

through some type of online platform or system. Since it is difficult to explicitly link publications in Medium, we knew we had to begin developing a separate website to meet this need.

We asked ourselves:

How might we best organize and showcase each type of portfolio?

How might we:
Create an online platform to collect and showcase district portfolios?

ACTION STEPS

Design a "landing page" for access to all types of portfolios
1. Create wireframes in Whimsical and Figma
2. Receive feedback on both user experience and user interface of the prototypes

Create a short, introductory video (<5 minutes) to introduce the idea of classroom portfolios at a staff meeting
1. Write the script for this video
2. Create the slide deck for this video

Ideate on how to best collect and present the portfolio-building resources we have created

ROUND 3

For our final round of prototypes, we primarily expanded upon the idea of creating a "landing page" to connect the different types of portfolios we had created. Additionally, we received feedback on the types of resources to include in our final solution including a script and slide deck for an introductory video that could be shared at a teacher staff meeting.

WITHIN-TEAM PROTOTYPING

From round 2 of prototyping, we had learned that our users were concerned that once teachers and students created portfolios, they would end up in a "dusty digital corner". When we began prototyping our landing page, our goal was to create a space for attracting community attention in an easily accessible and familiar location. The landing page would serve as an organized hub of all the information we want the community to engage with such as featured stories, student and teacher portfolio projects, and educational best practices happening within the district.

We started working on the idea for a portfolio landing page late in our design process. So, by the time we were able to show our landing page designs to our users, we had already iterated through several different prototypes and were working on building out our Digital Hallways idea. Prototyping this way is a bit risky, but luckily our Digital Hallways design was grounded in lots of

previous ideas from users, as well as inspiration from our own experiences walking through the hallways of WUHSMS.

For the initial prototypes of the landing page, we created several wireframes, which we critiqued among our team and classmates. We learned that while these wire-frames accomplished our goal of connectivity, they were not visually or conceptually exciting.

Wanting to recreate the colorful excitement of projects displayed outside the classrooms of WUHSMS, we designed a prototype titled Digital Hallways.

The first versions of what would be our final online community hub took off from there.

USER TESTING

We received feedback from four teachers and one administrator on our initial visions for the Digital Hallways idea.

Additionally, we asked them to read through our script and slide deck for the introductory video. We presented all of this material in a single Google document, so we also received feedback on how teachers would best like our solution to be presented once it is complete.

To receive feedback on the Digital Hallways prototype, we shared a click-through Figma prototype with our users. After they had a chance to explore the prototype we asked:

Is there any information we should add to the website? Is there any information we should get rid of?

Is the information organized in an easy-to-navigate manner?

Would you be happy to share this website with colleagues from another school?

We also asked specific questions about the resources we had created:

Would you rather see more or less information?

Do our arguments for why this idea is important make sense?

How do you think your colleagues would react to the way we have presented this idea?

LEARNINGS

Landing Page
Teachers and administrators we enthusiastic about the Digital Hallways idea as a concept. They were excited that this platform provided a way to link all Medium publications together. Both teachers and administrators said our prototypes were easy to navigate, while also emulating the experience of walking through hallways of a school and seeing student work on the walls. The administrator we spoke with said: "it's a great opportunity going forward to keep everything into a centralized place because then you could highlight this innovative work on a regular basis".

One teacher emphasized making this idea accessible to the public, saying:

"This has the potential to set us up as leaders in the state for deeper learning - the more accessible it is the more people will come to our site for inspiration."

Constructively, teachers and administrators wondered how a site like this might be built and maintained. Without human and financial resources, the idea of this type of centralized landing page may need to be postponed.
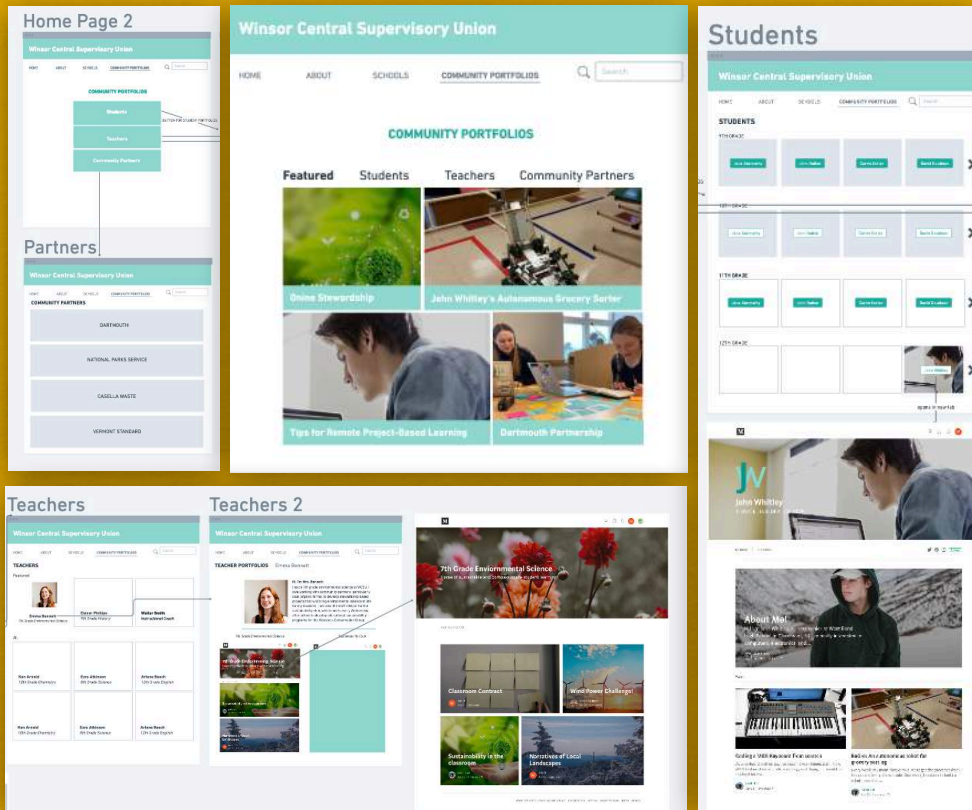
LANDING PAGE PROTOTYPES
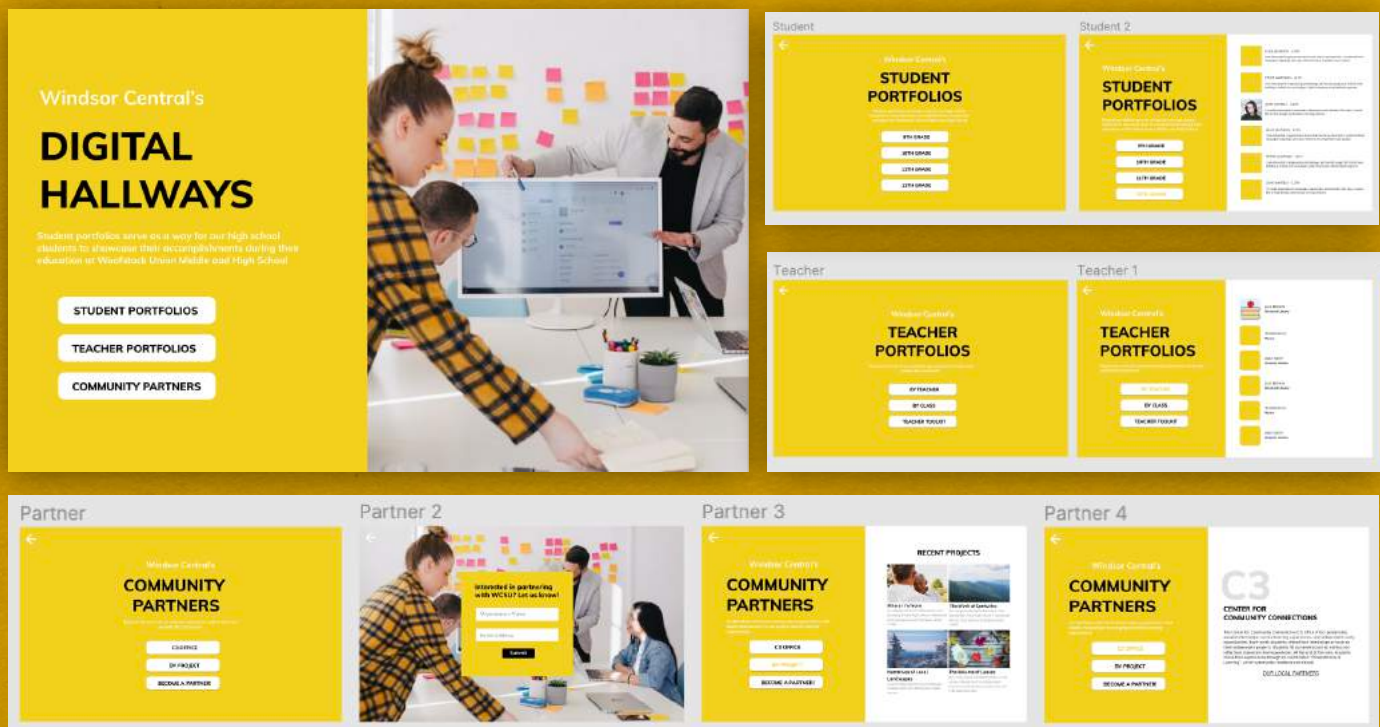
Resources
We learned that our guides on "how to write your first story in Medium" , and "getting started in Medium" were too long and complicated for teachers.

*One teacher said she was "**Afraid teachers will not use if it is too* complicated**."**

This feedback harkens back to our insight about the scarcity of teacher time, and the need to design experiences which are respectful of it. Additionally, with remote learning, teachers experience great screen fatigue when reading through materials online. To address these realities, one teacher suggested that we include a screencast tutorial for each section of the guide. This solution would provide modularity for the set-up, customization, and story-writing experience, allowing teachers to pick and choose the material that they interact with. Additionally, we learned we should present our resources in a way that is easy for "teachers to just open and start using". This learning inspired our idea for a separate Medium publication containing all of our resource information.

Finally, the administrator we spoke with suggested the we make a visual framework to tie all of our solution pieces together. A cohesive framework, they said, would allow our idea to be more readily packaged and presented to important stakeholders such as members of the school board.

ACTION STEPS

Create short tutorial videos. Based on the steps we took as we prototyped full teacher and student portfolios, we decided we would need to make 11 tutorial videos.

1. 3 videos on how to get started in Medium (creating a profile, creating a publication, writing a story)
2. 4 videos on how to customize teacher portfolio layouts.
3. 4 videos on how to customize student portfolio layouts

Create a Medium publication to house all resources on classroom portfolios

1. Write an article describing an overview of our idea and its connection to district goals
2. Write supplementary articles with portfolio building tips
3. Write articles to direct users through tutorial videos.

Develop a framework for presenting this collection of examples, resources, and landing page prototypes to important stakeholders (school board, administrators, and teachers)

Since this was our last round of prototyping, the action steps listed above brought us to our final solution!
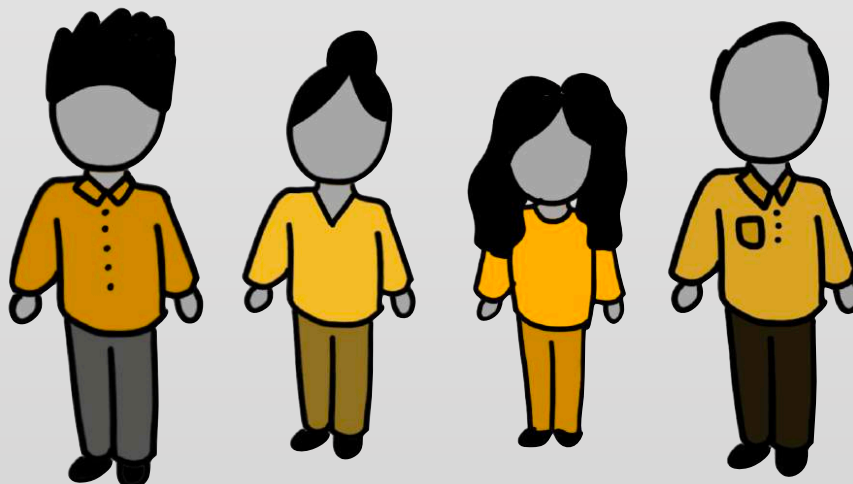
Acknowledgements

We would like to thank our liaison in the district, Raphael Adamek, for his ongoing support over the course of this partnership. We also greatly appreciate the insight and enthusiasm demonstrated by all of our interviewees.

To the WUHSMS teachers and administration: your passion, creativity, and dedication to your students is inspiring! Through this report, we hope that we can provide a starting point for building community, even in less than ideal conditions.

Finally, many thanks to our professor, Eugene Korsunskiy, and our Senior Design Challenge classmates for their help with brainstorming, vital project feedback, and support throughout this endeavor.