

**RESEARCH REPORT**

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# Student Engagement In Remote And Blended Learning Environments



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# Executive Summary



The sudden COVID-19 pandemic outbreak made a dramatic impact on K-12 education which caused a large number of students and teachers to move to online classes. However, due to the differences of remote learning/teaching and limited time to adapt to the new tools/technologies, many teachers have reported that they are facing great challenges to engage and evaluate students effectively in remote and blended learning environments.

To have a better understanding of teachers' experience and struggles with remote instruction; students' attitudes and behaviors regarding the changes of learning environment; and the complex nexus of technology and education, we interviewed teachers from across the country in public schools, at different grade levels and in different subject areas. We also gathered perspectives from subject matter experts in different disciplines. From our research, four key themes emerged: 1) Tools/technology in remote education, 2) Student Engagement, 3) Pedagogue, and 4) Relationship. From these four high-level themes, we were able to draw six key insights that answer questions about what roles technology plays in education, specifically online education, factors that impede or encourage student engagement, teachers' pedagogical approaches to online education and the types of relationships that are key to facilitating increased student engagement.

Our research has revealed reasons that contribute to students' low engagement and we see an opportunity for leveraging the online platform and technology to better support teachers. The following document outlines our research processes which include literature review, SME interviews, field observations, follow-up interviews, contextual inquiries, and a competitive analysis, our salient insights, and principles that will guide us to the design phase.

# / Background



We started our research by conducting a literature review to help us gain a better understanding of remote education and the complex nexus of technology and student engagement, specifically through the lens of teachers.

## The Pandemic and Future of Education

The rapid and unexpected shift to remote learning at the start of the pandemic has led to concerns that students are falling behind [1]. While Covid has been a problem, it has also been a wake-up call that it might be time to re-think the education system. Surprising to some, there have been positive outcomes from remote learning.

### Parents and Teachers Want and Expect Remote Teaching To Continue

Remote learning has turned out to be a good option for students with diverse and special needs, educators and parents wanting more flexibility, and those with concerns about deteriorating school facilities. A poll conducted in January 2021 found 42% of parents actually prefer remote teaching; seventy-five percent indicated they were getting the type of instruction they wanted for their children [2].

As for teachers, Moreland University surveyed 641 teachers about the impact of COVID-19 on their instruction and determined sixty percent believe online education will continue after the pandemic. Furthermore, they expect remote schooling will improve the educational system and want to be a part of it [6].

### **Congress Has Invested**

Much of the infrastructure needed to continue with remote learning is already in place. The CARES Act approved by Congress in March 2020 infused \$13.2 billion into addressing the technological, educational, and training gaps that caused many of the struggles experienced early in the pandemic [3]. President Biden's \$2 trillion plan is also expected to include money to extend high-speed broadband coverage intended to help students in areas that do not currently have access to remote learning [4]. Continued use of these investments benefits students suffering from illness, injury or disability as well as those who may otherwise not be able to attend school in person. It also offers flexibility to educators, students, and guardians.

## **What is Student Engagement?**

Student engagement is a nebulous and contentious term subject to multiple interpretations [7]. One common definition is that it refers to the energy, the amount of attention, curiosity, interest, optimism, and passion that students show when learning. The amount of energy and effort students put in is shaped by a range of structural and internal influences, including the complex interplay of relationships, learning activities, teaching strategies, the learning environment [8], etc. The more students are engaged and empowered within their learning community, the more likely they are to channel that energy back into their learning, leading to a better study experience and outcome.

When it comes to evaluating student engagement, there are three widely accepted dimensions of student engagement: affective, cognitive and behavioural [8]. Most of the educational technology research has focused on learning the student engagements from a behavioural perspective since it is more likely to be observed and evaluated.

## Teacher Challenges

One challenge with remote learning is ensuring teachers can effectively engage students and track their progress. Improving student engagement is a common goal expressed by educators. Teaching in a classroom is a sensory deluge. In remote learning environments, teachers report having difficulty gauging how well students were learning on a day-to-day basis because a lot of visual and auditory feedback is lost with video conferencing [1].

Teachers also were experiencing feelings of professional loss, uncertainty and burnout due to the overnight shift to online learning. They were suddenly disconnected from their students and colleagues while also having to figure out how to teach in this new environment. Many who had been teaching in the same way for years successfully, now had to adjust their curriculums and plans to fit the online environment. This resulted in the feeling as though they had lost their job and were starting a brand new one, one for which they felt ill prepared. Balancing professional and personal lives became a challenge as the demands of daytime jobs bled into the time needed to homeschool their own children, resulting in burnout [1].

## Linguistic Hygiene

**Curriculum:** According to the framework proposed in the national curriculum document for early childhood education (In New Zealand the Te Whariki curriculum), curriculum is defined as: “the sum total of experience, activities and events, whether direct or indirect, which occur within an environment designed to foster children’s learning and development” [9].

**Pedagogy:** Pedagogy refers to the full set of instructional techniques and strategies that enabled learning to take place in early childhood settings, which provided opportunities for the acquisitions of knowledge, skills, attitudes and dispositions [10].

# Target Audience



## Why 6th to 9th grade students?

### Why 6-9th grade students?

Students in 6-9th grade and their instructors are more open to accepting new technologies and methodologies. This is because they are still experiencing a lot of play time in school.

### Why not above 9th grade?

In 9th grade and above, they tend to become less flexible to accepting new methods or technologies as they begin to be more focused on standardized testing and college prep. At the university level, teaching isn't the primary focus of a professor's role so they are often less interested in experimenting with new teaching tools and methods.

### Why not below 6th grade?

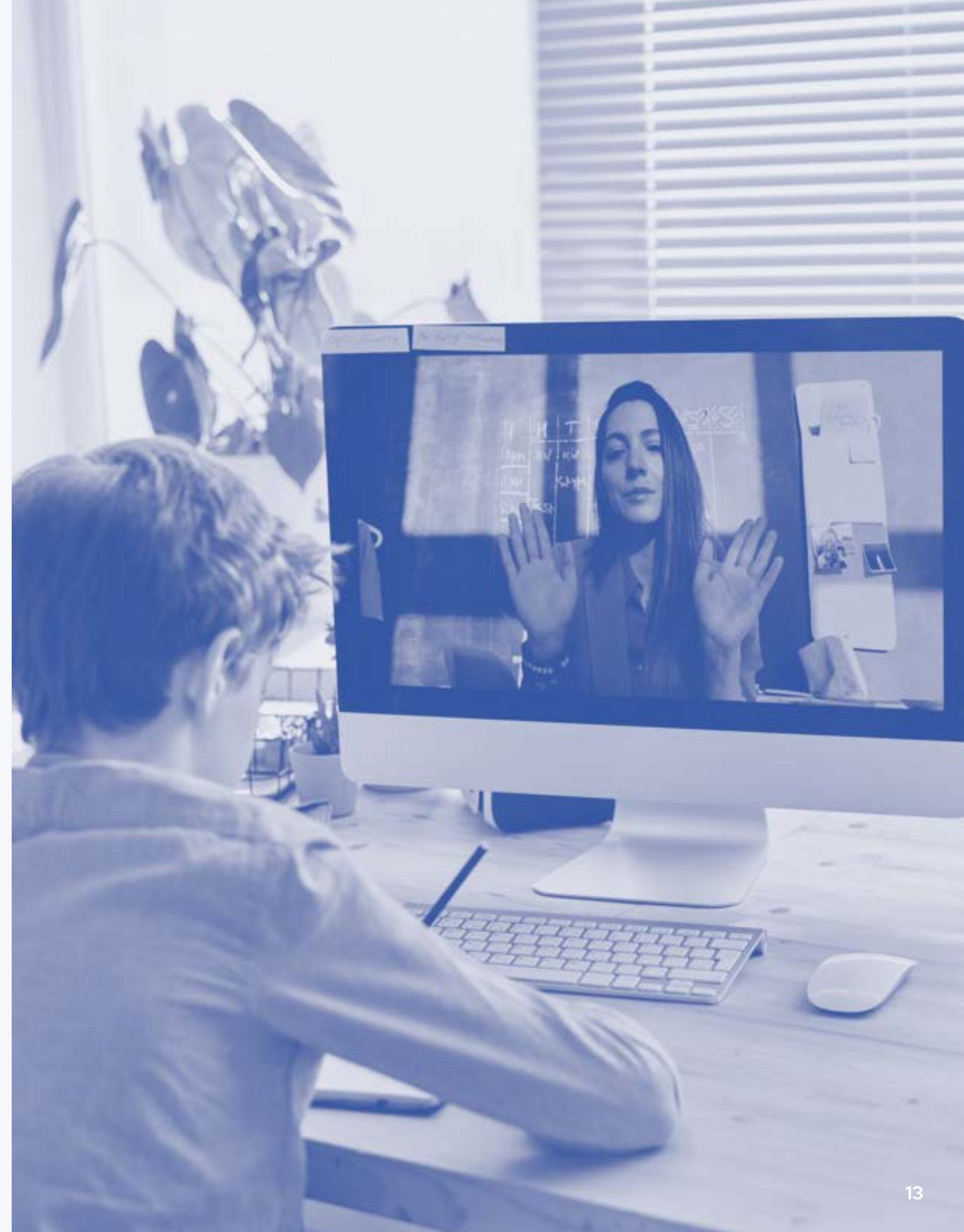
Children below 6th grade have less consistent access to technologies and they tend to be less technologically. Red tape goes up considerably when it comes to permissions for research with students below this age. We also found that for students fourth grade or below, that physical manipulation in the classroom is important to learning so a virtual learning experience may not be best for them. Finally, when considering a design concept, we found we may run into issues such as having to consider designing for small hands and issues due to cognitive development.

### Why not multiple age groups?

Considering different age groups have different needs, we also wanted to narrow in on a single student group.

## Why Teachers?

Teachers were a major stakeholder that were really struggling during the pandemic. They had major concerns about how they would effectively engage and evaluate student progress remotely. Current tools were clearly not working for them and we saw it as an opportunity to ensure they can engage students remotely and help them feel confident students were making progress. We were also being pragmatic knowing it would be more feasible to contact teachers for research and that we may potentially get richer content by interviewing them.





# Research Objectives



Since there is a paucity of research about middle school (6th to 9th grade) remote teaching, we planned to conduct this study to better understand teachers' current situations and struggles. Our study asked: **How do teachers engage 6th to 9th grade students in remote and blended learning environments?** There are many available tools/programs supporting remote learning, but we want to know what obstacles, if any, teachers face when trying to facilitate a more engaged learning environment? What are some goals and needs that both students and teachers are looking for?

In this study, we were specifically focused on learning teachers' perspectives out of the consideration of the procedural complexity and difficulty of conducting research on minors.

# Research Questions



1. How do teachers define and evaluate student engagement?
  - ▶ How do teachers know when their students are engaged?
  - ▶ How do teachers evaluate their student's level of engagement during remote learning classes?
2. How are teachers facilitating engagement in remote learning environments?
  - ▶ What resources do teachers use to facilitate engagement?
  - ▶ Which strategies do teachers find most effective and least effective to engage students in the remote learning environment?
3. What are the hurdles to student engagement in remote learning environments?
  - ▶ How do teachers currently navigate these hurdles?
4. How are teachers building relationships with their students remotely?
5. How are teachers adapting practices to facilitate students with different learning styles online?
6. What are the differences in students' level of engagement based on individual learning styles?

# Research Methods



## SME Interviews

We conducted seven SME interviews with experts to better understand student engagement in remote and blended learning environments. We defined our experts in three main categories: (1) education consultants / researchers who have research or consulting experience on remote education, (2) school administrators who have remote education experience and can offer an administrative perspective on the expectations for student engagement, and (3) technologists who are familiar with different types of digital tools for remote education. We found our SMEs mainly by leveraging the recommendations from our networks, such as our sponsor, the instructors, and the cohort.

Due to the limitations of the Covid-19 pandemic, we conducted all our interviews via Zoom. Each interview lasted 60 minutes, with different types of questions we prepared for different experts based on their expertises and experiences. Our goal was to gain a better understanding of student engagement in general, and help us to narrow down on specific problem spaces.

## SME Profiles

### Education Consultant, Researcher:

**SME 1** is a tenured professor at the University of Washington Information School and the Department of Computer Science & Engineering. As a professor, she focuses on exploring ways and developing tools to better teach computer science and design. As an entrepreneur, she was the founding CTO of AnswerDash, a SaaS company. With her expertise, we can get inspired by her big picture perspectives on understanding students' learning barriers posed by technology, the learning environment, and teacher education paradigms through the lens of human-centered design and entrepreneurial thinking.

**SME 2** is the Co-Founder and Director for the Project for Mental Health & Optimal Development in the Graduate School of Education at the University of Pennsylvania. He's also a Teacher Educator & Leadership Consultant. As a teacher educator, he can provide us big picture perspectives on educational best practices for student engagement. His current project has given him insight into what teachers are currently struggling with (uncertainty) along with recommendations for how to plan for and overcome uncertainty.

**SME 3** is a visiting researcher at Massachusetts Institute of Technology. She is currently working on a project closely related to emergency remote instruction and teachers' teaching experiences during the pandemic. Her report, *What's Lost, What's Left, What's Next: Lessons Learned from the Lived Experiences of Teachers during the 2020 Novel Coronavirus Pandemic* helped us narrow our problem space to students' engagement in remote learning. As a researcher who has already done studies on online and distance education, She can help us get an in-depth understanding of teachers' remote teaching experience and we also want to gain her personal perspectives on the future of education and the role technology can play.

### Administrator:

**SME 4** is the Assistant Principal for Seattle Public Schools. By speaking with Corey, we hope to gain the perspective of an administrator on expectations for student engagement and how it is evaluated. Also, we hope to get an administrative perspective on what is and isn't working for teachers in remote learning environments, and learn what the school is doing to ensure teachers are engaging students.

### Technologists:

**SME 5** has previously advised Shape Studio, a virtual live studio space designed by a group of MHCI+D C7 students. His previous experience with Shape Studio gave him the knowledge on how to build a technology that can facilitate collaborative activities, encourage communication, and advance class management. He is currently working on a 3D scan project to create a more lively and interactive remote learning environment. By talking to him, we hope to gain insight on how to create a more engaging learning environment along with design recommendations.

**SME 6** is the assistant director for learning technologies at the University of Washington Information School. He works with faculty in the MLIS program, providing training for the different uses of online learning tools. He is passionate about researching and implementing emerging technologies to impact teaching and learning. As a technologist who works closely with UW teachers, we can directly ask him about the training and learning tools UW uses to cope with the remote teaching situation.

**SME 7** is the founder of Leo AR EDU, an augmented reality app for children to learn with interactive play. We like the idea of letting children learn through playful and interactive activities and want to chat with her to understand how she views the value of playful learning with respect to student engagement.

# Recruitment Strategy

We hoped to recruit 6th–9th grade public or private school teachers who have experience in remote or blended teaching, and we expected our participants to have different experience levels of teaching, such as the amount of years working with 6th to 9th graders, and different subjects they taught. Therefore, we created a recruiting survey screener and posted it on different social media platforms, such as Facebook and UW DUB slack channel. We also recruited participants from our personal networks and used snowballing.

Our participants for both field observation and contextual inquiry include:

- ▶ One 7th grade Math Teacher
- ▶ One 7th grade English Teacher
- ▶ One 8th grade Science Teacher
- ▶ One 6th & 7th grade Math Teacher



## Field Observation & Follow-Up Interview

Our goal was to study both students and teachers' behavior in remote and blended classroom environments. We aimed to develop a better understanding of interactions between students and teachers in these environments and to collect behavioral data including participants' actions, posture, and affect by observing their behavior, workflow, and interactions. Then, we gathered first hand feedback from teachers on what they considered to be highlights, issues and obstacles to student engagement in the remote learning environment through follow-up interviews. We have aimed to understand middle school teaching experiences from their perspective, and explored how teachers are coping with using technology to deliver their curriculum in remote and blended teaching environments.

### Procedure

With participants' permission, our team would join several remote classes, take detailed descriptive field notes about the setting, actions/activities, and conversation between the participants. The documenting field notes that our team took generally consist of two parts, 1. Descriptive information and 2. Reflective information. Our team was expected to accurately document the social environment and the way in which participants interact within the (remote) classroom setting and always try to provide as much detail as possible on the artifacts-in-use, actions, behaviors, and conversations that they observed. In terms of reflective information, we would also record our thoughts, ideas, questions, and concerns during the observation.

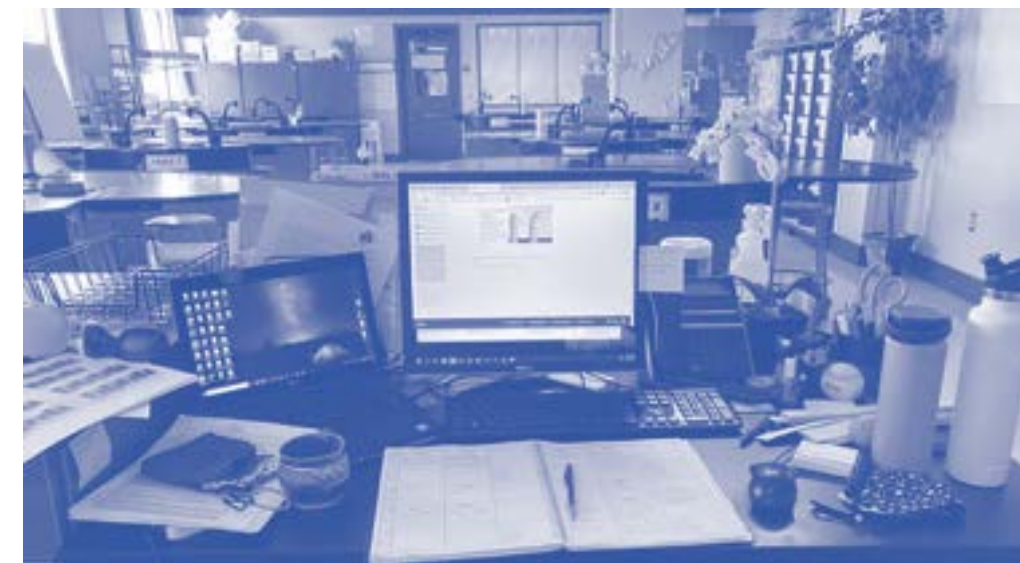
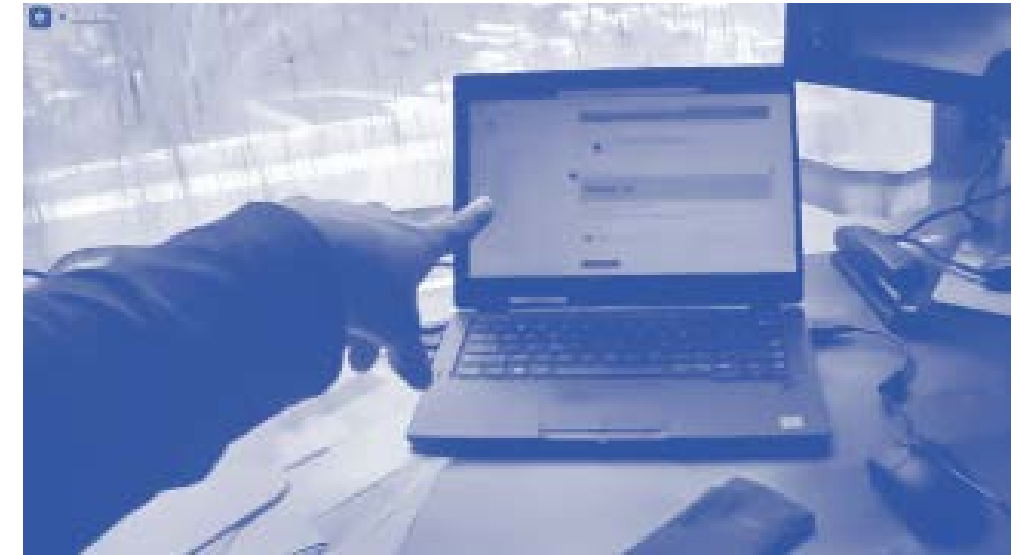
After that, we would conduct a 30 minute follow-up interview with teachers to get a deeper understanding of the insights we found, and ask any questions we have from the observations, and learn more about student engagement in general from them. (For more detailed information about the procedure, please refer to the Appendix section.)

# Contextual Inquiry

While performing contextual inquiry with teachers, we aimed to gather detailed information about the physical environment and how teachers prepare their classes and build relationships with students in remote and blended learning environments.

## Procedure

Each contextual inquiry took 60 minutes, and would be broken into two parts. First, we asked the participants to briefly talk about their online teaching experience and follow up with some questions related to their personal experience and feelings of remote teaching. Then, we asked them to show their working environment and tools they like to use for remote teaching. (For more detailed information about the procedure, please refer to the Appendix section.)



# Competitive Analysis

We conducted a competitive analysis to better understand the existing competitors' strengths and weaknesses in order to find more insights and opportunities for remote education. Our team reviewed a total of eight different products including both tech-related products and traditional curriculum programs.

## Tech-Related Products:



## Curriculum Programs:





## Evaluation Criteria:

### Basic Information

- ▶ Demographic: What demographic does this tool target? Who do you think the product is targeting? What companies/tools target a similar audience?
- ▶ Medium: What form does this tool take?

### Environment

- ▶ Space type: What kind of space does the tool create?
- ▶ Space Vibe / Aesthetic: What kind of feelings are communicated to and felt by others?

### Affordance

- ▶ Presence: Does the tool have multiple ways of indicating participants' presence/attendance, and how?
- ▶ Communication: Does the tool support different types of communication (such as a spontaneous hallway conversation), and how?
- ▶ Reflection: How does the tool support self-reflection or meta-cognition?
- ▶ Feedback: Does the tool allow for users to send and receive feedback?
- ▶ Retention: Can users know the time duration they stay on the tool?

### Design Principles / Values

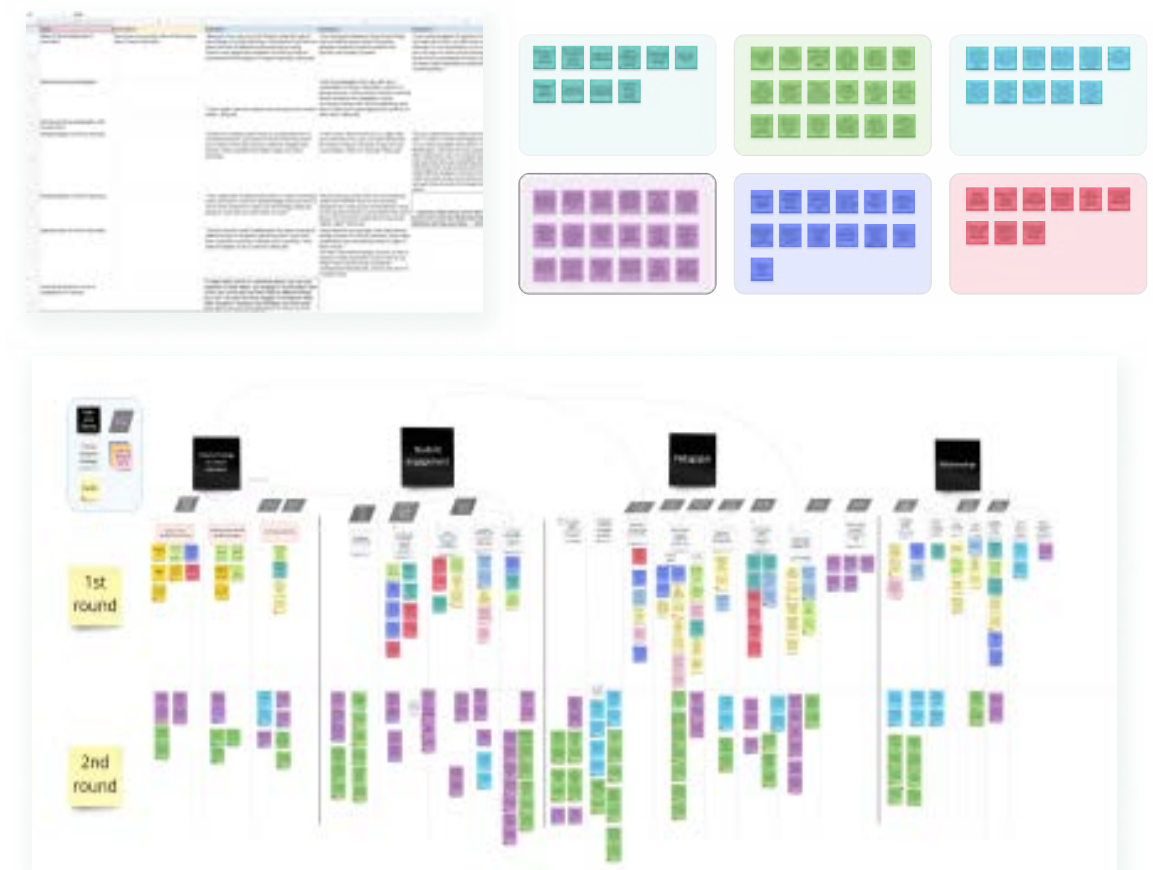
- ▶ Adaptability: Is the tool able to adapt to different types of users, and how?
- ▶ Accessibility: Is the tool able to support a different range of abilities, and how?
- ▶ Inclusivity: Does the tool support an inclusive learning environment, and how?
- ▶ Community: Does it facilitate a stronger community for learning and support, and how?

## What We Learned:

- ▶ Students are willing to engage in co-create learning activities and playful learning environments [11].
- ▶ Teachers need more configurations to adapt their different pedagogies online and get more help to be more aware of student interests and strengths.
- ▶ We should redefine student engagement in online environments to help teachers to evaluate student engagement in a more appropriate way.
- ▶ While adding more features to the product, we should assess if the learning curve is too high for our target audience.

# Analysis & Synthesis

First we coded the data we gathered from SME interviews, field observations, follow-up interviews and contextual inquiries, and transferred the codes with insightful quotes into excel forms individually. We then combined them to a shared Google excel form. After that, we transferred all the codes with supportive quotes to our Miro board, and assembled them into sticky notes. To organize this information and protect participant's privacy, we color coded each participant. Afterwards, we used affinity mapping to group our findings into four high-level themes: tools/technology in remote education, student engagement, pedagogue, and relationships. Finally, we drew key insights, design principles, and desired outcomes from the previous affinity diagramming.



# / Insights



- 1.** Remote learning environments have magnified the problem of students' disengagement for a variety of reasons including students feeling self-consciousness and lack of structure.
- 2.** Teachers have to use different criteria when evaluating student engagement compared to in-person teaching due to the limitations posed by online education such as missing multi-sensory levels of communication beyond a webcam.
- 3.** Creating a well-thought curriculum is a refining process that requires teachers to take into consideration the context where learning takes place, and with whom. In this process, technology serves as an empowering tool to allow teachers to have more configuration of curriculum design.
- 4.** As a teacher, creating a unique bond with your students and understanding their interests and needs in and outside the classroom will not only help the teacher understand how to get them engaged but will encourage them to do so.
- 5.** By integrating educational technology into the existing curriculum, teachers are able to harness online learning as a powerful educational tool to create more adaptive learning environments that fulfill the needs of students who previously struggled in person.
- 6.** With the wide adoption of digital communication tools among educators, teachers have been finding the added benefit of collaboration with their colleagues. They can share their successes, failures, frustrations or questions with one another and get feedback at any time.

## Remote learning environments have magnified the problem of students' disengagement for a variety of reasons including students feeling self-consciousness and lack of structure.

Teachers reported students feeling shy or self-conscious about how they might be perceived on camera, not just how they look but also their living situation and environment. Teachers reported examples of students living in cars, in foster care, and having family members coming in and out of the background. They also spoke about students lacking structure and shared stories of students struggling with time management, organization, not having a dedicated study space, and having to take care of siblings. Students in these situations tended to disengage or fall behind.

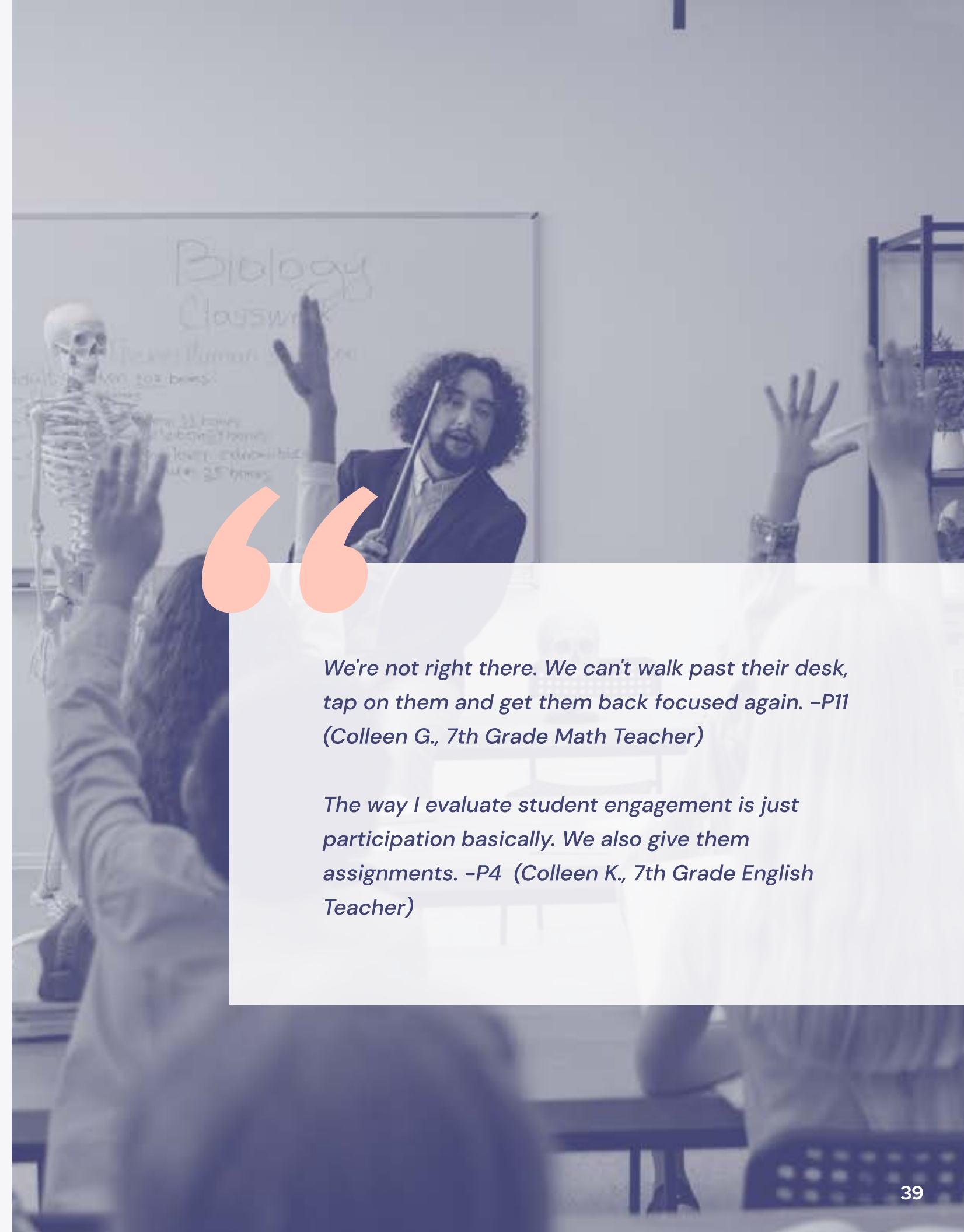


*We have family situations where they don't want to share what's in their background when sometimes that's a good thing. They're embarrassed of their home life. We have some kids living in cars... - P11 (Colleen G., 7th Grade Math Teacher)*

*... kids that were set up at a desk did better, but those that sat in their beds did worse as far as engagement. - P4 (Colleen K., 7th Grade English Teacher)*

**Teachers have to use different criteria when evaluating student engagement compared to in-person teaching due to the limitations posed by online education such as missing multi-sensory levels of communication beyond a webcam.**

Teachers report that many methods used to evaluate student engagement in in-person classes cannot be well applied to online teaching. For example, teachers cannot walk back and forth in the classroom, pay attention to the facial expressions and behaviors of each student, and remind students through tactile interaction. Therefore, teachers' assessment of students' engagement in the online environment is mainly based on attendance, assignments completion and other basic criteria. In addition, many existing tools of online education have a relatively simple understanding of student engagement, which failed to support teachers to assess student engagement from different aspects. For instance, only verbal communication affects the assessment of engagement in a product, which totally ignores other types of engagement (emojis, facial expressions, messages in the chat, etc).



*We're not right there. We can't walk past their desk, tap on them and get them back focused again. -P11 (Colleen G., 7th Grade Math Teacher)*

*The way I evaluate student engagement is just participation basically. We also give them assignments. -P4 (Colleen K., 7th Grade English Teacher)*

**Creating a well-thought curriculum is a refining process that requires teachers to take into consideration the context where learning takes place, and with whom. In this process, technology serves as an empowering tool to allow teachers to have more configuration of curriculum design.**

According to the framework proposed in the national curriculum document for early childhood education, the term curriculum is defined as: “the sum total of experience, activities and events, whether direct or indirect, which occur within an environment designed to foster children’s learning and development” (Ministry of Education, 2017, p. 7). While designing a well-thought curriculum, teachers should have clear pedagogical objectives for strategies adopted to carry out a meaningful cognitive learning experience. Technology, as a tool, with its ability to bring more interactivensess and playfulness into the classroom, is able to help teachers to better configure the classroom and plan for different types of learning activities.

$$\frac{\partial}{\partial x} (e^u) = 0$$

$$\frac{\partial}{\partial x} = -\frac{1}{e} \frac{\partial \varphi}{\partial x}$$

$$+ u \frac{\partial}{\partial x}$$



*A lot of my prep begins first with thinking about learning objectives, thinking about pedagogy, thinking about student identity, student goals, and trying to imagine what their aspirations are, what the purpose of this class is in their life. – S1 (UW Professor)*

*There are other students that do that because they don't want to bring attention to themselves during class and even if they were in-person. – P4 (Colleen K., 7th Grade English Teacher)*

**As a teacher, creating a unique bond with your students and understanding their interests and needs in and outside the classroom will not only help the teacher understand how to get them engaged but will encourage them to do so.**

Building relationships between students and teachers that go beyond academics allows students to express their personalities and shows students that teachers are more than just instructors. It creates a unique bond that encourages students to engage more in the classroom and gives teachers valuable data into understanding what gets them engaged so they can build upon their pedagogies. Building a relationship with students means looking out for their overall wellbeing, reaching out to other colleagues as needed, becoming their personal advisor, cheerleader and watchdog. It should provide a safe space for students to express their hopes, desires, and concerns.

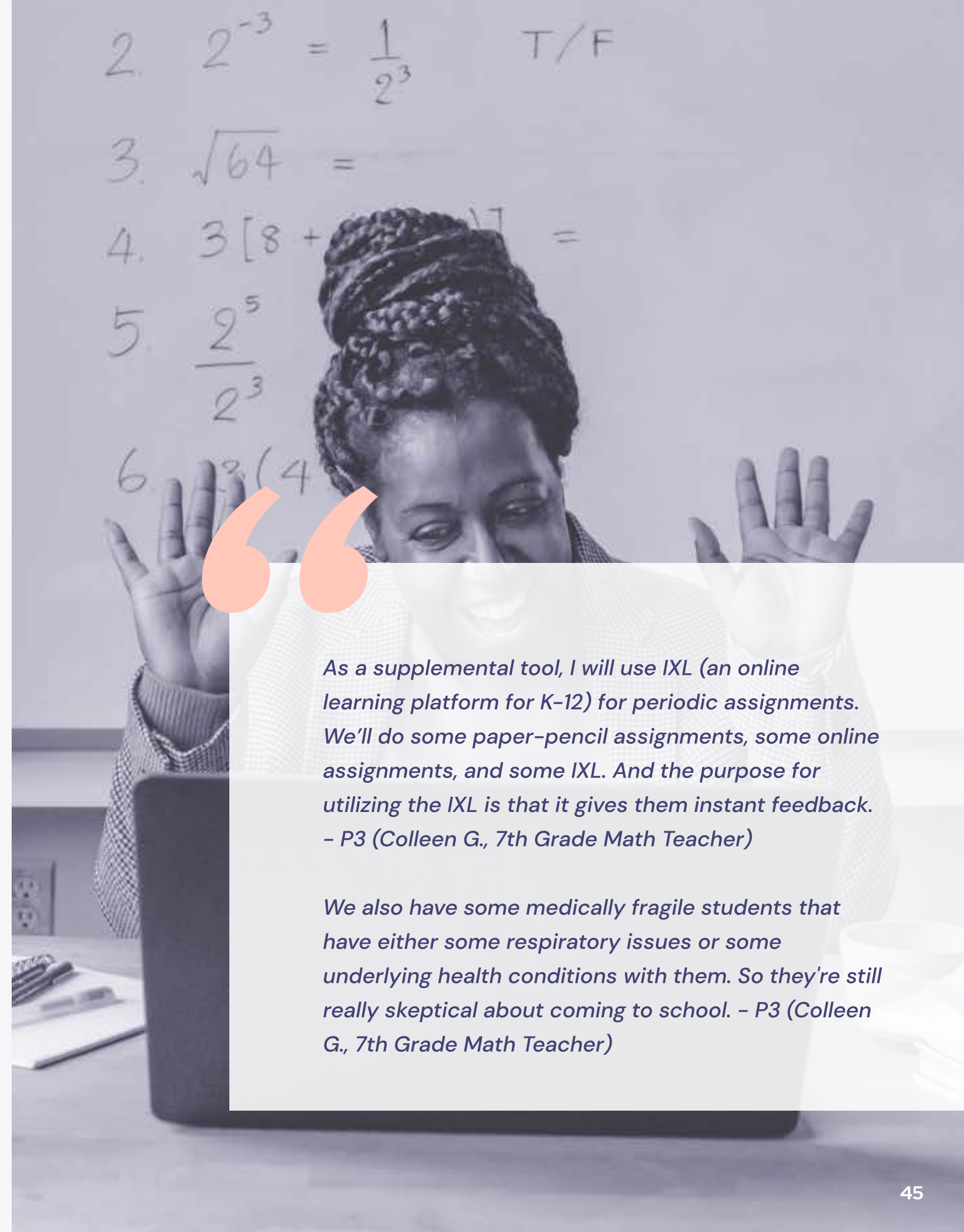


*You also listen to them [students] and listen, not just to what they say, but all the different things that you can get from them that they give off. That gives you all this data... - S2 (Andy, Educational Researcher)*

*... for example, [student] is interested in horses ... so I might create a problem we're going to do a corral for ... how big of a pen can we build what could be some of the dimensions, some of those different types of things. - P3 (Colleen G., 7th Grade Math Teacher)*

**By integrating educational technology into the existing curriculum, teachers are able to harness online learning as a powerful educational tool to create more adaptive learning environments that fulfill the needs of students who previously struggled in person.**

Currently, teachers have tried Kahoot for icebreaking activity, Quizlet for online gamified learning, IXL for online personalized learning, and other more educational technologies to create a more diverse and engaging learning experience for remote learning. Teachers reported an increased engagement and better academic performance when elaborately designing different learning activities such as flipping flashcards, matching, and more interactive learning. Teachers are also able to integrate different forms of technology like audio, videos, graphics, animations, powerpoint slides, and therefore, provide overall wider access to learning materials that students can access and engage during and after classes, with no time and geographical restrictions. With more ways of accessing and engaging with learning materials, students in different life situations such as in medical conditions, traveling with parents and language learners are able to pick the way that best fits their situations.



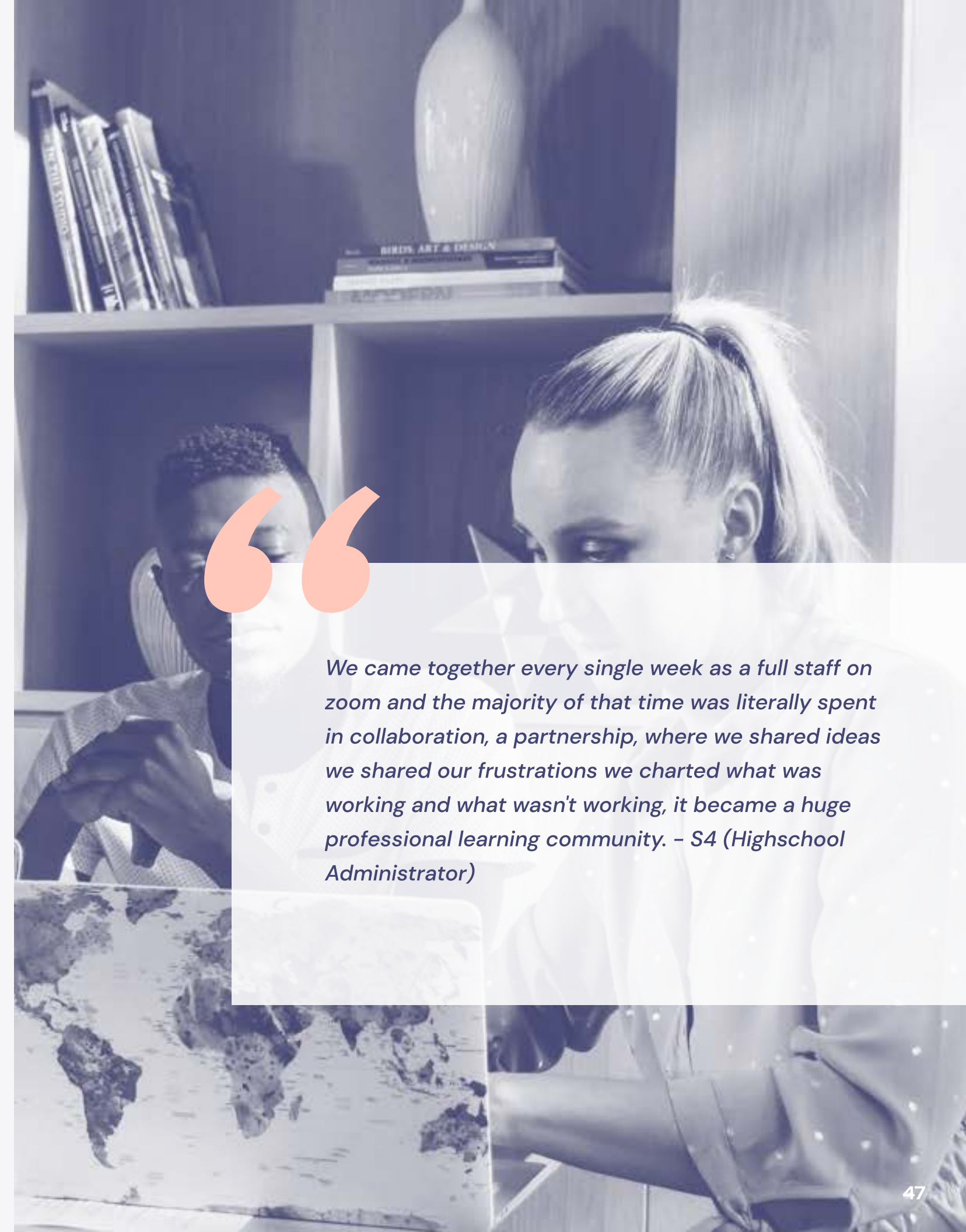
*As a supplemental tool, I will use IXL (an online learning platform for K-12) for periodic assignments. We'll do some paper-pencil assignments, some online assignments, and some IXL. And the purpose for utilizing the IXL is that it gives them instant feedback.*  
- P3 (Colleen G., 7th Grade Math Teacher)

*We also have some medically fragile students that have either some respiratory issues or some underlying health conditions with them. So they're still really skeptical about coming to school.* - P3 (Colleen G., 7th Grade Math Teacher)



**With the wide adoption of digital communication tools among educators, teachers have been finding the added benefit of collaboration with their colleagues. They can share their successes, failures, frustrations or questions with one another and get feedback at any time.**

Teachers have access and opportunity to collaborate with colleagues not just from their school but from others. They can speak more spontaneously, frequently, and conveniently as they do not have to travel to another location. They have more opportunity to ask questions, share their frustrations, and learn what works and what doesn't. As a result, they feel more supported, and a greater sense of community.



*We came together every single week as a full staff on zoom and the majority of that time was literally spent in collaboration, a partnership, where we shared ideas we shared our frustrations we charted what was working and what wasn't working, it became a huge professional learning community. – S4 (Highschool Administrator)*

# / Design Principles



- ▶ **Evaluate student engagement:** Our design should provide ways for teachers to evaluate student engagement that are suitable for the remote and blended learning environments. (Driven by Insight 1)
- ▶ **Give Students More Agency Adaptive Learning:** Our design should allow students to have more flexibility on picking different learning methods and enable teachers to create a customizable learning experience that accommodate students' different needs. Our design should allow teachers to accommodate students' different needs and create a customized learning experience that fulfill the specific needs of individuals. (Driven by insight 3)
- ▶ **Relationships and Unique Bonds:** Our design should enable growth of personal relationships between students and teachers. (Driven by insight 4)

# Desired Design Outcomes

- ▶ Help students feel less self-conscious and more comfortable expressing themselves in remote and blended learning environments. (Driven by insight 1)
- ▶ Provide multiple evaluation methods that allow teachers to have a better recognition of different levels of engagement. (Driven by insight 2)
- ▶ Leverage the flexibility of online education and the existing assistive technologies to build a more adaptive learning environment that is able to accommodate students' different needs. (Driven by insight 3, 5)
- ▶ Provide a safe and easily accessible space for students and teachers to discuss student interests, activities, concerns and goals. (Driven by insight 4)
- ▶ Help students find structure and balance while managing their academic and personal lives. (Driven by insight 3)



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# / Appendix



Research Plan A

Research Plan B

Recruitment Screener

SME interview Guide

Consent Forms

Gratuity Release Form

Field Observation Notes

Follow-Up Interview Notes

SME Interview Notes

# Plan A - Field Observation

## Introduction and Background

### The Pandemic and Future of Education

The rapid and unexpected shift to remote learning at the start of the pandemic has led to concerns that students are falling behind [1]. While Covid has been a problem, it has also been a wake-up call that it might be time to re-think the education system.

### Parents and Teachers Want and Expect Remote Teaching To Continue

Surprising to some, remote learning has turned out to be a good option for students with diverse and special needs, educators and parents wanting more flexibility, and those with concerns about deteriorating school facilities. A poll conducted in January 2021 found 42% of parents actually prefer remote teaching; seventy-five percent indicated they were getting the type of instruction they wanted for their children [2].

As for teachers, Moreland University surveyed 641 teachers about the impact of COVID-19 on their instruction and determined sixty percent believe online education will continue after the pandemic. Furthermore, they expect remote schooling will improve the educational system and want to be a part of it [6].

### Congress Has Invested

Much of the infrastructure needed to continue with remote learning is already in place. The CARES Act approved by Congress in March 2020 infused \$13.2 billion into addressing the technological, educational, and training gaps that caused many of the struggles experienced early in the pandemic [3]. President Biden's \$2 trillion plan is also expected to include money to extend high-speed broadband coverage intended to help students in areas that do not currently have access to remote learning [4]. Continued use of these investments benefits students suffering from illness, injury or disability as well as those who may otherwise not be able to attend school in person. It also offers flexibility to educators, students, and guardians.

### Teacher Challenges

One challenge with remote learning is ensuring teachers can effectively engage students and track their progress.

Student engagement refers to the amount of attention, curiosity, interest, optimism, and passion that students show when learning. Student engagement correlates with the level of motivation they have to learn and progress in their education [5]. Improving student engagement is a common goal expressed by educators. Teachers report having difficulty gauging how well students were learning on a day-to-day basis during the pandemic because a lot of visual and auditory feedback is lost with video conferencing [1].

From this study we hope to gain an understanding of what teachers are currently doing to engage students in online studies. Our goal is to uncover opportunities to ensure remote learning engages students and helps teachers feel confident that students are making progress.

## Research Objectives

Since there is a paucity of research about middle school (6th to 9th grade) remote teaching, we are planning to conduct this study to better understand teachers' current situations and struggles. Our study asks: **How do teachers engage 6th to 9th grade students in remote and blended learning environments?** There are many available tools/programs supporting remote learning, but we want to know which obstacles, if any, teachers face when trying to facilitate a more engaged learning environment? What are some goals and needs that both students and teachers are looking for?

In this study, we are specifically focused on learning teachers' perspectives when considering engagement because 'student engagement' is a nebulous and contentious term subject to multiple interpretations [7]. One common definition is that it is shaped by a range of structural and internal influences, including the complex interplay of relationships, learning activities, teaching strategies, the learning environment etc [8]. Considering the procedural complexity and difficulty of conducting research on young kids, we decide to focus on the structural dimension, learning student engagement from teachers' perspectives.

## Sub-questions

1. How do teachers define student engagement?
  - a. How do teachers know when their students are engaged?
  - b. How do teachers evaluate their student's level of engagement during remote learning classes?
2. How are teachers facilitating engagement in remote learning environments?
  - a. What resources do teachers use to facilitate engagement?
  - b. Which strategies do teachers find most effective and least effective to engage students in the remote learning environment?
3. What are the hurdles to student engagement in remote learning environments?
  - a. How do teachers currently navigate these hurdles?
4. How are teachers building relationships with their students remotely?
5. How are teachers motivating their students remotely?
  - a. What's working and what isn't?
6. What are the differences in students' level of engagement based on individual differences such as personalities and learning styles?
7. How are teachers adapting practices to facilitate students with different learning characteristics?

## Screener

### Recruiting Logistics

- 5-8 6th to 9th grade teachers
- Teachers in remote teaching in 6th to 9th grade levels
- Teachers in public and private schools
- Teachers of different experience levels
  - Amount of years working with 6 - 9 graders
  - Different kind of subjects have taught

### Survey Screener

[Middle School Remote Learning Observation Research Screener Link](#)

#### Section 1 of 6

##### Introduction

We invite you to be part of our observation study and help us learn more about remote learning experience at school. If you are interested in the study, please take this 3-5 minute survey. If we select you to be part of our study, you will receive a \$25 Amazon gift card at the end of the study session!

##### Who We Are and Study Purpose:

We are a group of graduate students from the University of Washington's Human-Computer Interaction + Design (MHCI+D) program. For this study, we will be asking your consent for letting us conduct an observational session of your class over your school's distance learning system (Zoom, Microsoft Teams, Google Hangout, etc.). We aim to develop a better understanding of interactions between students and teachers in these environments and to collect behavioral data. We will be taking detailed descriptive field notes about the setting, actions/activities, and conversation between participants.

##### What to Expect:

At the end of this survey, please enter your name and email so we can reach out directly. If you are eligible, a researcher will reach out via email to confirm the date and time.

This study is entirely voluntary and you may stop at any point. All data will be confidential for research purposes only. All information will be stored in a secure, password-protected folder in Google Drive and will not be shared with anyone outside of this project.

## Documentation Plan

### Team Roles

#### Field Study Observer

- Observe and take field notes
- Write preliminary analysis

#### Semi-structured Interview Facilitator

- Go through all the logistics
- Leads the semi-structured interview

#### Documentarian

- Monitor participation
- Prepare all the required forms
- Set up and pretest recording device
- Collect signed forms and track gratuity release
- Transfer and organize the data from Google form to spreadsheet for later data analysis

#### Point of Contact

- Acts as the primary contact for participants during the entire study (Field study and interview)

### Material Checklist

#### Tools and Devices

- Zoom or any equivalent tool the classroom is currently using
- For post interview - recording device (phone) or Zoom recording
- Computer or notepad for note taking / sketches

#### Papers and Form

- Consent form
- Gratuity release form



## Field Study

### Objective

We are going to study both students and teachers' behavior in remote and blended classroom environments. We aim to develop a better understanding of interactions between students and teachers in these environments and to collect behavioral data including participants' actions, posture, and affect. We will observe aspects of their behavior, workflow, and interactions.

### Observers Task

With participants' permission, observers will be joining several remote classes, taking detailed descriptive field notes about the setting, actions/activities, and conversation between the participants. When documenting fieldnotes, observers should keep in mind that fieldnotes generally consist of two parts, 1. Descriptive information and 2. Reflective information. Observers are expected to accurately document the social environment and the way in which participants interact within the (remote) classroom setting and always try to provide as much detail as possible on the artifacts-in-use, actions, behaviors, and conversations that they observe. In terms of reflective information, researchers should also record their thoughts, ideas, questions, and concerns during the observation. Observers will finish following tasks by the end of this study:

1. Take jotting including sketches during your observation, then write up field notes in prose afterwards as soon as possible.
2. Include text description for any sketches.
3. Take notes in chronological order and add a timestamp at least every 5 minutes. If nothing notable happens in a 5 minute interval, add the timestamp and leave the line blank.
4. Write up preliminary analysis to reflect and think about the underlying meaning of what you observe and record your insights and thoughts accordingly.

### Introduction

"Hi! We are 4 graduate students studying Human-Computer Interaction Design at University of Washington currently working on our capstone project. We want to learn more about students' engagement in remote learning environments. So today, we will be joining the class with you all! Please just work and act as you would normally. We won't audio or video record anything but just do a pure observation with written notes. Please don't pay too much attention to us and focus on your class. Thank you!" *[Class proceeds and observation starts]*

## Semi-structured Interviews

### Objective

After gathering our own field observations, we will gather first hand feedback from teachers on what they consider to be highlights, issues and obstacles to student engagement in remote and blended learning environments. We want to understand middle school teaching experiences from the educator's perspective through semi-structured interviews. Additionally, we want to explore how educators are coping with using technology to deliver their curriculum in remote and blended teaching environments.

### Introduction

Hi, my name is *[facilitator's name]*, and I am with my teammates *[introduces team, explains each team role, and asks to start recording]*.

Thank you for participating in our research study and allowing us to be observers in your class. The purpose of this interview is to help us understand the factors that may enhance students' engagement in remote and blended learning environments. In today's session, I will ask you some questions related to your personal experience of remote teaching and what we have observed in your online class. It will take approximately 60 minutes to complete.

We sent you a consent form via email, so let's read through that together. We'll take this time to quickly summarize our confidentiality guidelines aloud and get your verbal consent to make sure we have informed consent from you.

Your privacy will be protected to the maximum extent allowable by law. Your name will not appear in conjunction with the data gathered during this interview, we'll use the pseudonym you provided. Your responses are completely confidential and any identifiable information will be removed.

During the session, you are free to take a break or stop the session at any time. While we go through the session, feel free to ask any questions that come to mind.

Also, in order to best capture the details of this interview, we'll be recording audio and video as well as taking some screenshots of the session. The photos and recordings are strictly for analysis purposes and will only be viewed by members of our research team. Can I confirm again officially that it's okay to record this session?

Thank you! Do you have any questions before we start?

### Interview Questions

1. From the last observation, we found out that [describe the findings from last observation] So from your perspective, on a scale of one to five, with five being the most engaging, how engaged do you think the students were during that class?

*Rationale:* This question is intended to get a better understanding of what we found from the field observations from the teacher's perspective. It is also a warm-up question for participants to adapt our rhythm of the interview.

2. How do you define student engagement?

*Rationale:* This question is intended to understand teachers' own definition of the term "student engagement" since the term varies from one teacher to another. Furthermore, this question is intended to give insights into the variables that teachers would use to evaluate/measure student engagement.

3. What are the differences in student engagement when teaching remotely vs in-person?

*Rationale:* This question is intended to better understand how teachers perceive the difference in student engagement between remote and in-person teaching.

4. Tell me about the ways you meet the needs of different kinds of learners in this format.

*Rationale:* This question is intended to see how teachers would manage the class when students have different levels of engagement.

5. What obstacle, if any, do you face when trying to increase student engagement?

*Rationale:* This question is intended to understand what kind of obstacle participants are currently facing, which furthermore gives insights into the potential factors (such as lack of way to promote student interaction) that affect students engagement and how to overcome these obstacles.

#### Follow-up questions

1. What have you tried to increase student engagement in remote teaching?  
Face-to-face teaching?
2. What kind of external factors do you think impact students' engagement that are beyond teachers' control?

6. What do you think are the biggest advantages of remote teaching over in-person teaching?

*Rationale:* This question is intended to know what teachers think are the advantages of remote teaching to help us uncover what characteristics of this teaching style are beneficial and furthermore understand what teachers' needs.

7. What tools do you use for remote teaching? How do you use them? What do you like/dislike?

*Rationale:* This question is intended to help researchers know the existing tools of remote teaching on the market and their features/capabilities, which furthermore get inspired by learning why tools are effective or not.

8. What methods have you used to build relationships with your students?

*Rationale:* This question is intended to understand the ways that teachers have adapted/used to build better relationships with students in order to increase the student engagement.

9. What is your overall experience with this remote teaching format?

*Rationale:* This question is intended to get a basic understanding of participant's remote teaching experience. Potentially, this answer gathered from this question would compare with the participant's previous in-person teaching experience.

10. If you could magically give yourself a superpower or an advanced technology to better assist your remote instruction, what would you want, and why?

*Rationale:* This question is intended to uncover what kind of components/functions teachers are considering missing from the current educational environment without thinking about the real-world constraints (like money issues). Furthermore, the answers of this question are intended to inspire researchers' design vision and can potentially help them formulate design recommendations.

### Conclusion

Okay, that's the end of the interview. Before we wrap things up, I will open it up to the rest of the research team and see if they have any more questions for you. Is there anything else you would like to add? Great! Thank you so much for your time!

[end of session - stop recording]

## Screener

### Recruiting Logistics

- 5-8 6th to 9th grade teachers
- Teachers in remote teaching in 6th to 9th grade levels
- Teachers in public and private schools
- Teachers of different experience levels
  - Amount of years working with 6 - 9 graders
  - Different kind of subjects have taught

### Survey Screener

[Middle School Remote Learning Observation Research Screener Link](#)

#### Section 1 of 6

##### Introduction

We invite you to be part of our observation study and help us learn more about remote learning experience at school. If you are interested in the study, please take this 3-5 minute survey. If we select you to be part of our study, you will receive a \$25 Amazon gift card at the end of the study session!

##### Who We Are and Study Purpose:

We are a group of graduate students from the University of Washington's Human-Computer Interaction + Design (MHCI+D) program. For this study, we will be asking your consent for letting us conduct an observational session of your class over your school's distance learning system (Zoom, Microsoft Teams, Google Hangout, etc.). We aim to develop a better understanding of interactions between students and teachers in these environments and to collect behavioral data. We will be taking detailed descriptive field notes about the setting, actions/activities, and conversation between participants.

##### What to Expect:

At the end of this survey, please enter your name and email so we can reach out directly. If you are eligible, a researcher will reach out via email to confirm the date and time.

This study is entirely voluntary and you may stop at any point. All data will be confidential for research purposes only. All information will be stored in a secure, password-protected folder in Google Drive and will not be shared with anyone outside of this project.

## Documentation Plan

### Team Roles

#### Field Study Observer

- Observe and take field notes
- Write preliminary analysis

#### Semi-structured Interview Facilitator

- Go through all the logistics
- Leads the semi-structured interview

#### Documentarian

- Monitor participation
- Prepare all the required forms
- Set up and pretest recording device
- Collect signed forms and track gratuity release
- Transfer and organize the data from Google form to spreadsheet for later data analysis

#### Point of Contact

- Acts as the primary contact for participants during the entire study (Field study and interview)

### Material Checklist

#### Tools and Devices

- Zoom or any equivalent tool the classroom is currently using
- For post interview - recording device (phone) or Zoom recording
- Computer or notepad for note taking / sketches

#### Papers and Form

- Consent form
- Gratuity release form

# Plan B - Contextual Inquiry

## Contextual Inquiry

### Objective

We are going to perform a contextual inquiry to learn remote instruction. Performing a contextual inquiry with teachers, we aim to gather detailed information about the physical environment and how teachers prepare their classes and build relationships with students remotely.

### Introduction

Hi, my name is *[facilitator's name]*, and I am with my teammates *[introduces team, explains each team role, and asks to start recording]*.

Thank you for participating in our research study. The purpose of this research is to help us understand the factors that may enhance students' engagement and learn about your working environment, the teaching tools you use frequently, and your teaching habits in a remote and blended learning environment. For today's session, it will be broken into two parts: first, we will ask you some questions related to your personal experience and feelings of remote teaching during the interview session. Then, you will be asked to show your working environment and tools you like to use for remote teaching. It will take approximately 60 minutes to complete.

We sent you a consent form via email, so let's read through that together. We'll take this time to quickly summarize our confidentiality guidelines aloud and get your verbal consent to make sure we have informed consent from you.

Your privacy will be protected to the maximum extent allowable by law. Your name will not appear in conjunction with the data gathered during this interview, we'll use the pseudonym you provided. Your responses are completely confidential and any identifiable information will be removed.

During the session, you are free to take a break or stop the session at any time. While we go through the session, feel free to ask any questions that come to mind.

Also, in order to best capture the details of this interview, we'll be recording audio and video as well as taking some screenshots of the session. The photos and recordings are strictly for analysis purposes and will only be viewed by members of our research team. Can I confirm again officially that it's okay to record this session?

Thank you! Do you have any questions before we start?

### Part One - Interview Questions

1. Could you briefly talk about your online teaching experience?
  - a. What do you think are the biggest advantages of remote teaching compared to in-person teaching? (What would you miss the most if the school got fully opened for in-person teaching?)
  - b. What obstacle, if any, do you face during online instruction?
2. Is there a moment that you found yourself successfully engaging students in a remote class?
  - a. How do you evaluate student engagement?
  - b. What methods did you use?

*Rationale:* This question is intended to understand teachers' own definition of the term "student engagement" since the term varies from one teacher to another. Furthermore, this question is intended to give insights into the variables that teachers would use to evaluate/measure student engagement.

3. What methods have you used to build relationships with your students?

*Rationale:* This question is intended to understand the ways that teachers have adapted/used to build better relationships with students in order to increase the student engagement.

4. If you could magically give yourself a superpower to better assist your remote instruction, what would you want, and why?

*Rationale:* This question is intended to uncover what kind of components/functions teachers are considering missing from the current educational environment without thinking about the real-world constraints (like money issues). Furthermore, the answers of this question are intended to inspire researchers' design vision and can potentially help them formulate design recommendations.

Optional:

5. **(For [redacted] Tell me about the ways you meet the needs of different kinds of learners in this format.**

*Rationale:* This question is intended to see how teachers would manage the class when students have different levels of engagement.

## Part Two - Contextual Inquiry

### Introduction

Great! Now let's move on to the second part of today's session. We would like you to think out loud while you show us the physical/digital environment and tools you use for remote teaching. For example, a physical white board, tablet, or online collaboration tools you use while in class. At points I might jump in and ask you some questions. Please know there are no right or wrong answers.

### Items that the facilitator should prompt the participant to give explanations to:

1. Can you walk me through the process of how you prepare for a remote class?

*Ask to explain how they prepare for a class (ex. in-class activities)  
Remember to probe and think about potential markers*

2. Can you show me what tools you use for remote teaching?

- a. How do you use them?
- b. What makes you choose this tool?
  - i. How do you think it contributes to an engaging classroom
- c. How do you use these tools to evaluate student engagement during class?
- d. What do you like/dislike about the tool? (and what works / does not work about the tool)

*Ask them what tools they use for remote teaching, why they chose them, and what problems they have encountered when using them.*

3. How do you build/maintain connection with students outside of the classroom?
  - a. What tools/methods do you use?

*Ask how they communicate/build the relationship (outside of the class) with the students/parents.*

That was my last question, thank you! Before we end: Is there anything else that you think I should know (about your teaching environment in relation to student interaction)?

### Conclusion

Okay, that's the end of today's session. Before we wrap things up, I will open it up to the rest of the research team and see if they have any more questions for you. Is there anything else you would like to add? Great! Thank you so much for your time!

*[end of session - stop recording]*

# Recruitment Screener

## 6th to 9th Grade Teachers Remote Teaching Research Study

We invite you to be part of our research study and help us learn more about remote learning experience at school. If you are interested in the study, please take this 3-5 minute survey. If we select you to be part of our study, you will receive a \$25 Amazon gift card at the end of the study session!

### Who We Are and Study Purpose:

We are a group of graduate students from the University of Washington's Human-Computer Interaction + Design (MHCI+D) program. For this study, we will conduct a 60 minutes contextual inquiry including part 1: interview session and part 2: contextual inquiry session to understand the factors that may enhance students' engagement and learn about your working environment, the teaching tools you use frequently, and your teaching habits in a remote and blended learning environment.

### What to Expect:

At the end of this survey, please enter your name and email so we can reach out directly. If you are eligible, a researcher will reach out via email to confirm the date and time.

This study is entirely voluntary and you may stop at any point. All data will be confidential for research purposes only. All information will be stored in a secure, password-protected folder in Google Drive and will not be shared with anyone outside of this project.

If you have any questions or concerns about this survey, please reach out to one of our researchers, Mike Eisen via [mike@uw.edu](#). Thank you for your time!

Next

If you have any questions or concerns about this survey, please reach out to one of our researchers, Mike Eisen via [mike@uw.edu](#). Thank you for your time!

### Survey Questions

#### Section 2 of 6: General Information about the participants

1. What grade are you teaching?  
Multiple choice questions (6th, 7th, 8th, and 9th grade)
2. What kind of school system are you working in?  
Multiple choice questions (Public/Private school)
3. How long have you been teaching middle school students?  
Multiple choice questions (Less than a year, 1-3 years, 3-5 years, 5-10 years, and 10+ years)

#### Section 3 of 6: Remote Teaching Experience

4. How long have you been teaching remotely?  
Short answer questions  
If yes, continue to Q5
5. If you have remote teaching experience, what digital platforms are you using?  
Checkboxes

#### Section 4 of 6: Availability for Observational Session and Interview

6. Would you be open to allowing us to observe one or more of your classes?  
Multiple choice questions (Yes, observe one/Yes, observe one or more/No)  
If yes, continue to Q7  
If no, Jump to Section 6 (Thank you for your interest section!)
7. If yes, what kind of procedure do we need to go through? (Optional, we can talk about this later)  
Long answer text
8. A field observation would help us gain contextual information about student engagement in remote learning but we would love to hear teacher's feedback and learn more about your experience with remote teaching. Would you be willing to continue participating in this study and conduct a 60 minute semi-structured interview?  
Multiple choice questions (Yes/No)  
If yes, continue to Section 5 (Next Steps)

If no, Jump to Section 6 (Thank you for your interest section!)

**Section 5 of 6: Next Steps**

9. If you are eligible, one of our researchers will reach out to you via email to schedule a short 5-10 minute video chat or phone call to confirm your study date and discuss other logistics. During the video chat, we will share details about the format and structure of the study, confirm your survey answers, and share any other relevant information on what to expect in regards to the study.

**10. What is your name?**

Short answer text

**11. What is the best email address to contact you?**

Short answer text

**Section 6 of 6: Thank you for your Interest!**

We appreciate your time and interest in our study. We're excited for the potential to meet you and gather your valuable feedback.

If selected, one of our researchers will reach out to you via email within 3 days of your survey response. Thank you!

# SME Interview Guide

## Experts Profile

### Education consultant, researcher

**Mark Bertoni** is the Co-Founder and Director for the Project for Mental Health & Optimal Development in the Graduate School of Education at the University of Pennsylvania. He's also a Teacher Educator & Leadership Consultant. As a teacher educator, he can provide us big picture perspectives on educational best practices for student engagement. His current project has given him insight into what teachers are currently struggling with (uncertainty) along with recommendations for how to plan for and overcome uncertainty.

**Frank Ferris** is a visiting researcher at Massachusetts Institute of Technology. She is currently working on a project closely related to emergency remote instruction and teachers' teaching experiences during the pandemic. Her report, *What's Lost, What's Left, What's Next: Lessons Learned from the Lived Experiences of Teachers during the 2020 Novel Coronavirus Pandemic* helped us narrow our problem space to students' engagement in remote learning. As a researcher who has already done studies on online and distance education, she can help us get an in-depth understanding of teachers' remote teaching experience and we also want to gain her personal perspectives on the future of education and the role technology can play.

**Anna Wu** is a tenured professor at the University of Washington Information School and the Department of Computer Science & Engineering. As a professor, she focuses on exploring ways and developing tools to better teach computer science and design. As an entrepreneur, she was the founding CTO of AnswerDash, a SaaS company. With her expertise, we can get inspired by her big picture perspectives on understanding students' learning barriers posed by technology, the learning environment, and teacher education paradigms through the lens of human-centered design and entrepreneurial thinking.

### Administrator

**Christy Williams** is the Assistant Principal for Seattle Public Schools. By speaking with **Christy Williams** we hope to gain the perspective of an administrator on expectations for student engagement and how it is evaluated. Also, we hope to get an administrative perspective on what is and isn't working for teachers in remote learning environments, and learn what the school is doing to ensure teachers are engaging students.

## Technologists

**Chris Thomas** has previously advised Shape Studio, a virtual live studio space designed by a group of MHCI+D C7 students. His previous experience with Shape Studio gave him the knowledge on how to build a technology that can facilitate collaborative activities, encourage communication, and advance class management. He is currently working on a 3D scan project to create a more lively and interactive remote learning environment. By talking to him, we hope to gain insight on how to create a more engaging learning environment along with design recommendations.

**Michelle Satterly** is the director of the Center for Teaching & Learning at the University of Washington. As a teaching scholar and CTL director, she focuses on equity and access in face-to-face and online educational spaces, teaching in the global classroom, and assessment. By talking to her, we can gain big picture insights on educational best practices for student engagement specifically in the context of remote learning. We also want to get her personal perspective on her vision for future educational technology.

**Frank Ferris** is the assistant director for learning technologies at the University of Washington Information School. He works with faculty in the MLIS program, providing training for the different uses of online learning tools. He is passionate about researching and implementing emerging technologies to impact teaching and learning. As a technologist who works closely with UW teachers, we can directly ask him the training and learning tools UW uses to cope with the remote teaching situation.

**Christy Williams** is the founder of Leo AR EDU, an augmented reality app for children to learn with interactive play. We like the idea of letting children learn through playful and interactive activities and want to chat with her to understand how she views the value of playful learning with respect to student engagement.



## Interview Guide

### Interview Questions

#### For education consultant, researcher

1. What are the differences between remote and in-person teaching?
  - a. What are the advantages and disadvantages of remote teaching?
2. (more specifically) How does engagement differ in-person vs. remote?
  - a. What students do you see getting ahead in remote learning? Who's falling behind?
3. What have you learned that teachers are struggling with the most in respect to engaging their students in remote learning environments?
  - a. What supports are available for teachers encountering these challenges?
4. What tools (methods/paradigms) do teachers use for remote teaching? How do they use them? What do they like/dislike?
5. What opportunities do you see in the future of remote learning?
6. If you had a magic wand and could help teachers better engage students, what would you provide?

#### Optional questions:

1. How do you define student engagement?
2. What surprised you the most from your study?
  - a. How do teachers and schools evaluate student engagement?
3. What are you seeing teachers and schools do to help build and foster relationships with students in remote learning?
  - a. What worked well or didn't work well?

#### For administrators

1. What are your expectations of teachers with respect to student engagement?
  - a. How do you know whether those expectations have been met?
  - b. Are your expectations for in-person student engagement different from virtual?
2. What hurdles have your teachers encountered with engaging students remotely?
  - a. How has the school supported teachers encountering these challenges?
3. As an administrator, how are you helping teachers meet the needs of different kinds of learners in this format?
4. When deciding whether or not to implement emerging learning technologies in your school, what do you consider?
  - a. Who do you consult?

3

- b. What kinds of information do you gather?
5. What opportunities do you see in the future of remote learning?
6. If you had a magic wand and could help teachers better engage students, what would you provide?

#### Optional questions:

1. What are the differences between remote and in-person teaching?
  - a. What are the advantages and disadvantages of remote teaching?

#### For technologists

1. What tools do teachers use for remote teaching? How do they use them?
  - a. What do they like/dislike?
2. What hurdles have your teachers encountered with engaging students remotely?
  - a. How has the school supported teachers encountering these challenges?
3. What are the differences between remote and in-person teaching?
  - a. What are the advantages and disadvantages of remote teaching?
4. What opportunities do you see in the future of remote learning?
5. What's the role of technology, especially emerging technologies, in the future of education and instruction?
6. If you had a magic wand and could help teachers better engage students, what would you provide?

4

## Interview Guide

### Interview Questions

#### For education consultant, researcher

1. What are the differences between remote and in-person teaching?
  - a. What are the advantages and disadvantages of remote teaching?
2. (more specifically) How does engagement differ in-person vs. remote?
  - a. What students do you see getting ahead in remote learning? Who's falling behind?
3. What have you learned that teachers are struggling with the most in respect to engaging their students in remote learning environments?
  - a. What supports are available for teachers encountering these challenges?
4. What tools (methods/paradigms) do teachers use for remote teaching? How do they use them? What do they like/dislike?
5. What opportunities do you see in the future of remote learning?
6. If you had a magic wand and could help teachers better engage students, what would you provide?

#### Optional questions:

1. How do you define student engagement?
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  - a. How do teachers and schools evaluate student engagement?
3. What are you seeing teachers and schools do to help build and foster relationships with students in remote learning?
  - a. What worked well or didn't work well?

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1. What are your expectations of teachers with respect to student engagement?
  - a. How do you know whether those expectations have been met?
  - b. Are your expectations for in-person student engagement different from virtual?
2. What hurdles have your teachers encountered with engaging students remotely?
  - a. How has the school supported teachers encountering these challenges?
3. As an administrator, how are you helping teachers meet the needs of different kinds of learners in this format?
4. When deciding whether or not to implement emerging learning technologies in your school, what do you consider?
  - a. Who do you consult?

3

- b. What kinds of information do you gather?
5. What opportunities do you see in the future of remote learning?
6. If you had a magic wand and could help teachers better engage students, what would you provide?

#### Optional questions:

1. What are the differences between remote and in-person teaching?
  - a. What are the advantages and disadvantages of remote teaching?

#### For technologists

1. What tools do teachers use for remote teaching? How do they use them?
  - a. What do they like/dislike?
2. What hurdles have your teachers encountered with engaging students remotely?
  - a. How has the school supported teachers encountering these challenges?
3. What are the differences between remote and in-person teaching?
  - a. What are the advantages and disadvantages of remote teaching?
4. What opportunities do you see in the future of remote learning?
5. What's the role of technology, especially emerging technologies, in the future of education and instruction?
6. If you had a magic wand and could help teachers better engage students, what would you provide?

4

# Consent Form

## Consent Form - Observation + Post Interview

### About the Study

Thank you for agreeing to be in this study about student engagement in remote and blended learning environments. This consent form serves the purpose of outlining what the study will entail. The purpose of this study is to understand better teachers' experience with remote instruction and to further unpack how teachers facilitate student engagement and how students' engagement will be affected by the remote learning format. The study is made up of two parts, an observation and a follow up interview.

### Research Details

#### Observation + Post Interview

If you consent, you will be asked to let us observe one or more of your classes and participate in a 30 minute follow up interview with our research team using Zoom. During the observation, we will not disrupt the class in any way, we will simply watch and take notes. We won't record the class or take any notes that may identify any of your students. During the interview, we will ask you questions about what we observed in your classroom, your work and experiences with remote teaching. With your consent, the Zoom session will be recorded.

You do not have to respond to any questions you do not feel comfortable answering, and you may give as little or as much information as you choose.

Your participation in this study is voluntary. You are free to decide if you would like to participate or not, and you may withdraw from the study at any time. If you choose to withdraw from the study after the interview is completed, please email [redacted]. There are no negative consequences to withdrawing, and we will not use any of your information in our study.

#### Confidentiality

Your privacy will be protected to the maximum extent allowable by law. Your name will not appear in conjunction with the data gathered during this interview unless you expressly give us permission to use your name. Images of you or your home will not be used, unless you give permission. Your responses are completely confidential, and we do not monitor IP addresses.

**When our research is completed, the recording of your interview will be deleted.**

#### Time Obligation and Compensation

Participation in the post interview will take approximately 30 minutes of your time. You will receive a \$25.00 gift card to Amazon as acknowledgement for participating in this study.

#### Questions or Concerns

If you have any questions or concerns about the study or encounter any difficulties during the study, please contact one of our researchers, Mike via email or phone.

Mike Eisen

Email: [redacted]

Phone: [redacted]

#### Consent

By signing "yes" I am agreeing to voluntarily enter this study. I understand that, by signing this document, I do not waive any of my legal rights. I have had a chance to read this consent form, and it was explained to me in a language that I use and understand. I have had the opportunity to ask questions and have received satisfactory answers.

I also understand that if I am submitting this consent form via email, that the process of typing my name below and completing the interview indicates my voluntary agreement to participate. My signature below also indicates that I am 18 or older.

- I agree to participate in this study.
- I agree to be recorded during the interview.
- You may use screenshots of me in your write-up/ presentation.

You may refer to me in your write-up as: \_\_\_\_\_ (real name or pseudonym)

Printed Name	_____
Signature	_____
Date	_____

## Consent Form - Contextual Inquiry

### About the Study

Thank you for agreeing to be in this study about student engagement in remote and blended learning environments. This consent form serves the purpose of outlining what the study will entail. The purpose of this study is to understand better teachers' experience with remote instruction and to further unpack how teachers facilitate student engagement and how students' engagement will be affected by the remote learning format. The study is made up of two parts, an interview and a contextual inquiry.

### Research Details

#### Contextual Inquiry

If you consent, you will be asked to participate in a 60 minutes contextual inquiry including an interview session and a contextual inquiry session with our research team using Zoom. For this study, we will ask you questions about your work and experience with remote teaching during the interview session. And once the interview part is completed, we will ask you to be engaged with our inquiry activities, for example, take a picture of your working desk/station and show us how you will use these tools when preparing the classes to uncover the unarticulated aspects of your work/experience. With your consent, the Zoom session will be recorded.

You do not have to respond to any questions you do not feel comfortable answering, and you may give as little or as much information as you choose. And since we will be asking you to share your personal space, for example, we ask for a picture of your working station - please don't worry about any picture presentation. We are objectively observing and presentation is not important.

Your participation in this study is voluntary. You are free to decide if you would like to participate or not, and you may withdraw from the study at any time. If you choose to withdraw from the study after the interview is completed, please email [redacted]. There are no negative consequences to withdrawing, and we will not use any of your information in our study.

#### Confidentiality

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permission. Your responses are completely confidential, and we do not monitor IP addresses. **When we are done our research, the recording of your interview will be deleted.**

#### Time Obligation and Compensation

Participation in this study will take approximately 60 minutes of your time. You will receive a \$25.00 gift card to Amazon as acknowledgement for participating in this study.

#### Questions or Concerns

If you have any questions or concerns about the study or encounter any difficulties during the study, please contact one of our researchers, Mike via email or phone.

Mike Eisen

Email: [redacted]

Phone: [redacted]

#### Consent

By signing "yes" I am agreeing to voluntarily enter this study. I understand that, by signing this document, I do not waive any of my legal rights. I have had a chance to read this consent form, and it was explained to me in a language that I use and understand. I have had the opportunity to ask questions and have received satisfactory answers

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- I agree to be recorded during the interview.
- You may use screenshots of me in your write-up/ presentation.

You may refer to me in your write-up as: \_\_\_\_\_ (real name or pseudonym)

Printed Name	_____
Signature	_____
Date	_____

## Consent Form - Expert Interview

### About the Study

Thank you for agreeing to be in this research study. This consent form serves the purpose of outlining what the study will entail. The purpose of this study is to better understand **student engagement in remote and blended learning environments**.

### Research Details

#### Subject Matter Expertise Interview

If you consent, you will be asked to participate in a **30 minutes interview** with our research team using Zoom. During the study, we will ask you questions about your experience and knowledge within the field of education and some specific questions according to your work related to study engagement. With your consent, the Zoom session will be recorded.

You do not have to respond to any questions you do not feel comfortable answering, and you may give as little or as much information as you choose.

Your participation in this study is voluntary. You are free to decide if you would like to participate or not, and you may withdraw from the study at any time. If you choose to withdraw from the study after the interview is completed, please email [redacted]. There are no negative consequences to withdrawing, and we will not use any of your information in our study.

#### Confidentiality

Your privacy will be protected to the maximum extent allowable by law. Your name will not appear in conjunction with the data gathered during this interview unless you expressly give us permission to use your name. Images of you or your home will not be used, unless you give permission. Your responses are completely confidential, and we do not monitor IP addresses.

**When we are done our research, the recording of your interview will be deleted.**

#### Time Obligation and Compensation

Participation in this study will take approximately 30 minutes of your time. You will receive a \$25.00 gift card to Amazon as acknowledgement for participating in this study.

#### Questions or Concerns

If you have any questions or concerns about the study or encounter any difficulties during the study, please contact one of our researchers, Mike via email or phone.

Mike Eisen

Email: [redacted]

Phone: [redacted]

#### Consent

By signing "yes" I am agreeing to voluntarily enter this study. I understand that, by signing this document, I do not waive any of my legal rights. I have had a chance to read this consent form, and it was explained to me in a language that I use and understand. I have had the opportunity to ask questions and have received satisfactory answers.

I also understand that if I am submitting this consent form via email, that the process of typing my name below and completing the interview indicates my voluntary agreement to participate. My signature below also indicates that I am 18 or older.

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- I agree to be recorded during the interview.
- You may use screenshots of me in your write-up/ presentation.

You may refer to me in your write-up as: \_\_\_\_\_ (real name or pseudonym)

Printed Name	_____
Signature	_____
Date	_____

# Gratuity Release Form

## Gratuity Release Form

### Release Statement

I, the undersigned, acknowledge that I have received an Amazon gift card valued at \$25.00 for my voluntary participation in this research study.

Printed Name	
Signature	
Date	

## Contextual Interview

To let teacher guide our space, show the surrounding

Imagine an creative way to get student engaged, PE teachers engage students by asking them to go get their socks.

Probe/photo survey (great engagement tools) and tell us why.

# Field Observation Sample Notes

Time	Description
8:49 AM	is presenting/sharing screen of the classwork (classroom.google) for previous and future assignments for students.
8:53	is showing students a website (Quizlet) with the tool of flashcard, and math test.
8:56	is showing some math questions, and asks students to answer. Some online students are typing in the chat to answer the question. But only can click/interact with the right answer.
8:59	is showing and explaining the match option (match right answers) in Quizlet.
9:00	opens a online worksheet (angle relationships worksheet #2) in a tool called Kami
9:03	is talking and using her body language/gesture to show the angle relationships, but the window is very small to see since she is sharing the screen at the same time.
9:05	is changing different colors to draw and indicate the angles on the screen.
9:08	needs to draw the angle icon $\angle$ with different colors, and type the name of the angle (drawing and text tools)
9:14	cleans all the drawings on the image since there are too many drawings and colors. She starts to draw again for different sub-questions.
9:17	One online student ( ) is continue answering questions in chat, but sometimes cannot notice him in time
9:23	asks an in-person student to answer a question, but online students cannot hear the student.
9:26	is wondering one online student is here or not, he unmuted and explained "i was here from 9"
9:27	is still continuing to answer questions in chat with very quick responses. However, since he is too fast, needs to wait others students so she cannot interaction with the same speed!

### Notes:

- There are two 's accounts (later becomes three). One shows herself, another one is showing the in-person classroom so online students can see what in-person students are doing. However, the window is very small if someone is sharing their screen, so online students can barely see the in-person students. (can in-person students also see the online classroom?)
- There is echo 's online students talk as well (because of the two accounts from )

10:18 am Thursday  
3 pm

Date May 11th  
Location Google Meet hybrid class (with some students at home and some students physically at the classroom)  
Setting loud van and teacher wearing mask, whiteboard and markers for instruction  
Class 7th grade math class

09:06 Mrs. asked kids about the circumference formula but students are not participating. Mrs. waited for a while and gave the students some time to think. And the resolution is a bit low so the words written on the board are kinda blurry.

09:10 from the chat or the classroom answered the questions. Then, Mrs. explicitly called out a student's name but still, no student participation.

09:13 "are you with me today?" ["Okay" responded in the chat] Once the student confirms her participation, the teacher continued her instruction. "Everybody tell me why", the teacher asked and tried to get the entire class engaged. "Great job with the thumb! [something happens in the classroom but we cannot observe]", the teacher appreciated students' participation.

09:16 "I, what is 9 divided by 2 buddy? You can do this one, 9 divided by 2." ( is not answering.) Hey what's 9 divided by 2? is being quiet.] After a short silence, typed in the chat and the teacher said, "Nice job!"

09:19 Once confirmed 's participation, "are you with me today? Please answer my questions." [ typed 3 in the chat]

09:22 "A measurement that ... is the diameter. [the teacher is waiting for the kids' answer] Thank you for those who are participating today."

The teacher asks another question and "Type in the chat please or unmute. Those of you at home [the teacher is calling out each student's name to prompt them to answer]"

The teacher is being encouraged to students' participation and poking the students at home [with camera off] to be more active.

09:27 "Those at home please type in the chat quickly." The teacher is asking those kids to participate and answer the question.

If the student got the answer wrong, the teacher is being encouraged and asking the students to try one more time. When there

09:30 The teacher is asking for final clarification for the homework. A student (who are physically in the classroom) comes to ask a question and Mrs. [redacted] mutes herself and answers the question.

#### Debrief session

- Teacher constantly prompt the students to talk
- Disjointed to try to take care of the students from both sides
  - Jumping between whiteboard and camera
- Impossible to get any signals about the level of participation and engagement for the kids who are learning at home
- Physical setting: whiteboard and light setting making

Date May 18th

Location Google Meet hybrid class (with some students at home and some students physically at the classroom)

Setting loud van and teacher wearing mask, using PPT

Class Mrs. [redacted] Geometry class

---

08:50 The teacher is showing today's class agenda and walk students through the details of it.

08:52 The teacher explains how to use Quizlet for future vocabulary learning. The teacher noticed there is one on-person student got distracted and ask the student to go what he/she is supposed to be.

08:54 [Quizlet question on the screen] The teacher encourages students to answer. Continue showing what types of questions students would encounter when they are on Quizlet. For example, the Match option is structured in the game format and see ranking after completing it.

09:00 [Kami-teacher version] The teacher starts lecturing and today's topic is Angle Relationships. The teacher use the pen tool to highlight the angle in green but since it is done by the mouse, she couldn't get a straight line.

09:05 The teacher is using a combination of text and pen tools. Using the pen tool to draw the angle symbol and highlighting and then type out the characters.

09:10 Explaining the concept and terminology while going through the questions. The the teacher asks students to complete Q4 individually. No reaction from students online.

09:15 [Students in-person working on the chromebook and no feedback from students online] The teacher asks students how to name the angle. No in-person kid answer but one online student type in the chat.

09:20 Proceed to Q6. The teacher is able to get both feedback from students from both sides. A student in-person answer and the teacher repeats the process and answer again for the kids doing online. A student is being honest that she/he is not paying attention. Then the teacher switched to ask another student.



Time	Description
8:49 AM	Teacher is sharing the screen with a task on the screen, using Quizlet.
8:58 AM	Teacher is constantly giving hint to help student engaging the class
9:00 AM	Opening up the Kamri to explaining the task with visual tools. Being able to draw on screen seems very effective, but the accuracy is not as good as hand draw.
9:04 AM	Just noticed that there are two cameras open, one facing the teacher's face, and another one facing the students in the classroom. They are using the laptop to interact with the class too.
9:07 AM	Not sure if it is better to have students working with a piece of scratch paper, instead of with a laptop only.
9:10 AM	Do they have the cheat sheet to remember or take notes about the things the teacher is talking about?
9:15 AM	Teachers will have to repeat the question multiple times to get responds
9:19 AM	Teachers will reveal the answer at some point if she didn't get any answers
9:22 AM	Students in class will also respond through chat, even though they are right in the classroom
9:24 AM	There is one students who is able to follow up a lot of teacher's question and giving the chat respond
9:28 AM	There is a student who starts to talk, but seems interruptive.
9:30 AM	Class end, teachers will call on some students, either giving compliment or reminders

# Follow-Up Interview Sample Notes

## Interview Questions

1. Could you briefly talk about your online teaching experience? For example:
  - a. What is the biggest challenge/obstacle you have during the online instruction?
  - b. Why do you think that the online students are not actively participating in class (ex. Answering in the chat)?
2. From the last observation, we found out that [you asked the online student to present their writing for feedback while the in-person students can directly come to you.] We have noticed that online students could not see what in-person students were working on.
  - a. Can in-person students see the works from online students?
  - b. Why don't you let everybody present their writing for feedback online no matter if it's in person or online?
  - a. Is there anything else you found you have changed about your teaching behaviors after going online?
3. Is there a moment that you found yourself successfully engaging students in a remote class?
  - a. How do you evaluate student engagement?
  - b. What methods did you use?
4. If you could magically give yourself a superpower to better assist your remote instruction, what would you want, and why?

## Optional:

5. Have you adopted different ways to meet the needs of different kinds of learners in this format? For example: verbal/visual learner, introverted/extroverted, class performance levels, different characteristics, etc.
6. What methods have you used to build relationships with your students?

Notes: Mike

## Interview Questions

7. Could you briefly talk about your online teaching experience? For example:
  - a. What is the biggest challenge/obstacle you have during the online instruction?
  - b. Why do you think that the online students are not actively participating in class (ex. Answering in the chat)?
  - Open office in the afternoon but didn't have much participation
  - Grades were kept
  - Kids were just icons to us
  - Missed one on one time with kids
  - When kids turned their cameras on, it was scary
  - Kids were in closets
  - It opened our eyes to what kids were living with
  - Hybrid tested our skills
  - Feel like we are neglecting one or the other
  - We can't see what they're doing
  - Some kids do what they want to do (not participating)
  - Some are watching their siblings
  - Kids that sat at a desk did better, those on a bed, did worse, desks was more school like
  - There's a lot of barriers and distractions are the biggest one
8. From the last observation, we found out that [you asked the online student to present their writing for feedback while the in-person students can directly come to you.] We have noticed that online students could not see what in-person students were working on.
  - c. Can in-person students see the works from online students?
  - d. Why don't you let everybody present their writing for feedback online no matter if it's in person or online?
  - b. Is there anything else you found you have changed about your teaching behaviors after going online?
  - Usually teacher is presenting examples for everyone
  - Writing is extremely hard because it needs to be done one on one
  - Students have chromebooks (in person) and students monitor chat for online students
  - Writing is a personal thing
9. Is there a moment that you found yourself successfully engaging students in a remote class?
  - a. How do you evaluate student engagement?
  - b. What methods did you use?

- Kahoot, jamboards
- Students that were already engaged stayed engaged but those that weren't engaged stayed not engaged
- Evaluate through participation and their end product (summative assessment)
- Tried reward systems (didn't work)
- How do we incorporate online kids but still kids that were already engaged stayed engaged

10. If you could magically give yourself a superpower to better assist your remote instruction, what would you want, and why?

- A clicker to see what they're doing
- Can we make them actually turn their cameras on but decided that was unethical
- 

Optional:

11. Have you adopted different ways to meet the needs of different kinds of learners in this format? For example: verbal/visual learner, introverted/extroverted, class performance levels, different characteristics, etc.

12. What methods have you used to build relationships with your students?

- Use open office to give shy kids a safe place to talk with the teacher
  - Learn their personality during these sessions
  - Take advantage of open office hours
- Kahoot
- Kids when they speak about more personal subjects are more likely to interact between in person and online students
- Topics that are more spontaneous and personal seem to engage students more

#### Interview Questions - Michelle

13. Could you briefly talk about your online teaching experience? For example:

a. What is the biggest challenge/obstacle you have during the online instruction?

- Open office sometimes work efficiently but sometimes not
- When it comes to total virtual and that's a disaster
  - Have proper equipment but loss the one-on-one relationship/interaction with the kids
- Sometimes when asking the kids to open their camera, we get to know what kind of things are happening in their lives.
  - If you ask the kids to turn on their camera, there are so many situations happening when she is in a van and aging from elementary to 12 with siblings while she was taking the test.

b. Why do you think that the online students are not actively participating in class (ex. Answering in the chat)?

- We can't see what they are doing, tapping their desks to ask their attention back
- Some students notice that once you sign in, they still can get credit so they just sign and and leave
- A lot of students are not under supervised
  - Choices kids are giving permission to not go in-person
- Some students are watching their little siblings
- Students are set up on the desk does better but the ones in bed/floor/couch perform worse
- Lot of distractions from the family - parents yelling at the siblings

14. From the last observation, we found out that [you asked the online student to present their writing for feedback while the in-person students can directly come to you.] We have noticed that online students could not see what in-person students were working on.

e. Can in-person students see the works from online students?

- Usually I will present a good example to the classroom presenter.
- In-person kids have the chromebook and can see the online kids and sometimes will ask them to monitor the online chat.

f. Why don't you let everybody present their writing for feedback online no matter if it's in person or online?

- Generally the way is taught one-on-one, everybody can see everybody's writing. But we didn't go well with that, writing is personal thing

**c. Is there anything else you found you have changed about your teaching behaviors after going online?**

- We have grown so much with the use of technologies
- It is a struggle for older teacher
- The engagement is the biggest barrier overall and we couldn't just get into their home.

**15. Is there a moment that you found yourself successfully engaging students in a remote class?**

**a. How do you evaluate student engagement?**

- Participation (behavior tiger pride)
  - Not GPA related
  - It was hard to incorporate the online kids to play game
- the end product

**b. What methods did you use?**

- We did kahoot
- Besides writing because it is very personal and less enthusiasm but for other classes, they
- Kids would log in and said they have to go and we can't do anything
- Have engagement with a student who is missing for almost two months
- We tried reward system but we can't compete with the video game

**16. If you could magically give yourself a superpower to better assist your remote instruction, what would you want, and why?**

- I want a clicker that I can just click to see what the kids are doing behind the screen

Optional:

**17. Have you adopted different ways to meet the needs of different kinds of learners in this format? For example: verbal/visual learner, introverted/extroverted, class performance levels, different characteristics, etc.**

- I have little girl who is shy and hardly say anything
  - But online is the place where she can shine because she turn off the camera and we just talk
- Teachers just need to learn their different personalities

**18. What methods have you used to build relationships with your students?**

- Beyond open office
- When we are totally online, we must be creative to build the relationship
  - Share the news
  - "Get to know you" game
- Kahoot works well but kids get bored soon so we always need to step ahead

- I tried to integrate the online with the in-person kids but that was a disaster
- The online kids are separated to the in person
- Personal vibe provide comfortable space for the kids
  - Kids might be very chatty online

# Contextual Inquiry Sample Notes

## Notes - Michelle

### Part One - Interview Questions

6. Could you briefly talk about your online teaching experience?
- What do you think are the biggest advantages of remote teaching compared to in-person teaching? (What would you miss the most if the school got fully opened for in-person teaching?)
  - What obstacle, if any, do you face during online instruction?

- It's incredibly difficult to engage students.
- Spontaneously changing the old format is not possible
  - The tools we have been given really are not design for teaching online
    - Schoology - cannot repeat calendar events and that makes me to repeat same routine every week
    - Set up OneNote (access to students' work)
      - adding new students after you create a note is hard
    - Tools integration not user friendly
  - Annoying maneuver/components get accumulated and make you hard to focus on teaching
    - Learning, prepping and this make students are not the main focus
  - Tools we have so far fail to support the need to just do our basic job

7. Is there a moment that you found yourself successfully engaging students in a remote class?

- How do you evaluate student engagement?
- What methods did you use?

- Learning new ways to interact with parents (Improved conversation)
  - Parents are likely to email me, more likely to keep the contact information up to date
  - More time spending on talking to parents -> distraction from teaching
- Improved interaction with students -> Draw teachers who opposed to tech, make them shift their perspectives regarding technology
- I did well with engagement (phone of friend?)
  - Naming a students
  - Calling on each other and ask questions, make them to talk to each other
  - Get them engage and listen to each other
  - Students seem more comfortable being wrong than in-person
  - Getting kids to ask each other questions is walking but neither reflective nor effective conversation

- Student A: B do you know the answer for this?
- Difficulty on making engagement
  - No feedback, no camera on and don't want to be embarrassed
- How do you evaluate engagement?
  - Cannot grade based on test and engagement
  - Told students if they don't do their daily work and I will mark them absence (complete/incomplete)
- Ways have tried for increased engagement
  - Try interactive ppt system (give editable slides to allow students to draw and write on the slide)
    - But the students just don't it
  - Tried Kahoot
    - Only half of the students do it
  - Turn camera on if you think this is the answer
  - Virtual toss a ball to talk about topic
    - Still no feedback
  - I required students to come back for weekly meeting

8. What methods have you used to build relationships with your students?

I have many routines so when students come they know what they need to do

- Help to build relationships
- Help kids to feel comfortable with the environment
- Making Arrival slides (onboarding) fun
  - Icebreaker questions to yield random conversations
  - Helpful when the kids feel chatty
- Show the things I like, I appreciate to help them build confidence
- Have many one-on-one conversation
  - We meet each other and just talk random things, showing each other's pet
  - Still possible to joke
- Went over students lists to get insight on students and then bring those insight to conversation and make joke on the teacher who we both know

9. If you could magically give yourself a superpower to better assist your remote instruction, what would you want, and why?

- End the pandemic
- Create one system and integrate all the systems and functions we need
  - Easy to learn

Optional:

10. (For [redacted]) Tell me about the ways you meet the needs of different kinds of learners in this format.

Differentiation is great for learning science

- We need a bare minimum curriculum
  - Splitting content to small chunk
- Just the matter of shortening the work for students who needing less
- For general content
  - Visual presentation and talk
  - Schoology for warm up and quizzes for practice
  - Simulation - Amplify curriculum for Biology teaching, getting the evidence by showing different simulations
    - Show simulation of simple ecosystem
      - Rainfall lower
      - Put the temperature low to see the next 50 generations develop thicker fur

**Part Two - Contextual Inquiry**

Items that the facilitator should prompt the participant to give explanations to:

4. Can you walk me through the process of how you prepare for a remote class?



Teaching morning online course

- Teams meeting online
- Teach morning and after on block schedule
- Paper planner person
- Have to prepare checklists for each class. Go to Schoology to create morning and afternoon warm up activities and PPT slides
  - Create word doc table post on schoology for student to view activities in weekly bases
    - Helpful and will continue do a combination of paper

and digital calendar for events and activities

- Work life separation is not possible for teacher at this point



My presentation station

- The red cup: way to increase engagement: number on the card and randomly draw one and call out a students to answer questions
- Fairness and randomness are important for kiddo so they won't complain
- Printout of students information with students picture, nickname, and any additional info for other teachers to know about that student: helpful for taking attendance
- Lists of students in the cohort

- Print out of the units I am working
- Paper tracking on attendance
- I don't use whiteboard but a projector and smartboard and I will scribble on a ppt



Blue tape on the board: the agenda for weekly events



In-home work station

- Wednesday and one-on-one preparation
- Employee ID number on the tape cuz constantly forget

# SME Interview Sample Notes

## Experts Profile

### Administrator

\_\_\_\_\_ is the Assistant Principal for Seattle Public Schools. By speaking with \_\_\_\_\_ we hope to gain the perspective of an administrator on expectations for student engagement and how it is evaluated. Also, we hope to get an administrative perspective on what is and isn't working for teachers in remote learning environments, and learn what the school is doing to ensure teachers are engaging students.

## Interview Questions (Michelle)

Seattle public school: all students have devices

- Three main platform: Schoology (equivalent to Canvas)
  - Do announcements and
- Zoom + MicrosoftTeam: can do breakout sessions, chat

### 1. What are your expectations of teachers with respect to student engagement?

- To emphasize engagement and relationship, trying out different strategies to allow and reflect on their own activity, so that we can figure out what's the best approach we should proceed.
- Prior to remote, we do have a framework.
- But in remote places, we don't have the guiding framework and have to take a step back to rethink teaching.
  - How do we take attendance?
  - How do we do progress monitoring?
- Chat about what is working and what isn't working.
  - Education is about relationships
    - Spring, has 5 months to build relationships with kids
    - Fall, has 400+ new students without that relationship bonding
  - Figure out how to connect student one-by-one
  - Have survey drop on the chat for check in works well
    - Get instant feedback allows teachers to adjust their instruction
  - Ongoing communication goes well
    - Team chat able and constantly interact with teachers
  - More equal access to resource and study related content because Schoology is the only platform for communication

- Level of engagement is disproportionate
  - Parents not answering phone
  - Computer and devices not working
- Intervention and check-in are built within the digital tools
  - Teacher is able to provide instant message on their onenote
- One-on-One support goes up
  - Tutoring, translation, speech to text have been very helpful
- Challenged to provide individual support to a group of students
  - Sharing experience is jeopardize
- But if kids not showing off, or turning off the camera off, hard for me to keep track on them
  - But it goes done to the relationship building to make students willing to engage
- Direct online instruction require module structure, breaking done the activities because kiddo having hard time to keep kids stay in front of the computer
  - Ask teacher to constantly check in is not necessarily a burdensome
  - Thinking different how teachers should structure lessons to adapt remote format
    - Rethinking how you will lay out content
  - opportunity to assess students

### 2. What hurdles have your teachers encountered with engaging students remotely?

- Managing things
  - Too many tabs open
  - The agility to manage all the tabs while at the same time monitoring students are doing

### 3. As an administrator, how are you helping teachers meet the needs of different kinds of learners in this format?

### 4. When deciding whether or not to implement emerging learning technologies in your school, what do you consider?

- We (seattle public school) don't have direct authority to implement new technologies
  - We were exploring an online conference platform
- One Main thing district emphasizes: Accessibility (ADA compliant)

### 5. What opportunities do you see in the future of remote learning?

- Recognizing online learning work for some but not others
- Flexibility in terms of schedule and others
  - Ex. The ability to collaborate with teachers from other districts.
- More access to resource, learning tools

**6. If you had a magic wand and could help teachers better engage students, what would you provide?**

- Hardest thing we face: equity focus and ability to create inclusive environments but at the same time be able to maintain/build relationship (ex. have camera on)
  - Ex: be cognizant about kids are dealing with different situations
  - Selfie metaphor: no matter why kids are not turning the camera on because it's a vulnerable moment. Kids go online trying to show the best of them or fake.
- Somehow remove the barriers and change the understanding culture to create the vulnerable space to be comfortable to share.

**High School project based learning (PBL):** rethink the traditional structure because it only serves a certain type of learner.

- Connect Stanford design mode, engaging students in project-based learning (e.g. holding exhibitions.)
- Given the option to create own experience
  - students decide whether to tackle clean water, so they will draw from their previous experience and skill set to put on the final exhibition
- Change the power dynamic, giving students the power to determine what they want to do
- Onsite exhibition -> online digital exhibition: To allow students to take ownership of what they have learned and draw connections through different obtained skill sets (make the skill sets transferrable.)

## Interview Questions (Yimeng)

**7. What are your expectations of teachers with respect to student engagement?**

- Problem: never done this before
- Expect continue love students in the best way they can
- Be as creative with different strategies and tech that never been used
- Collaborate with others
- In order to figure out the best way
- Good teaching is good teaching
- Recreate what good teaching/learning look like in online environment
- Still learning this new format together
- Staff meeting last Fall: Share idea/frustration of online teaching: student video on/off, how to take attendance, how to monitor/walk around for class activities...
- Use Onenote, students doing work in it and sharing with the teacher, teacher can watch them doing their work while they are working in it. (imitate in person teaching)

- Relationship
    - Harder to think about how to build relationship with new students
    - Huge benefit in online environment to build one on one relationship
    - Works well: Quick checking and understanding / survey/ digital check (microsoft form, google doc), get instant results. Allow teacher adjust teaching quickly
  - access to resources
  - Not working for all students
    - Lack of relationship
    - Inability to access tech/ quick space...
    - Still big challenge: if cannot contact the kids/parents (no response for email/phone...) during pandemic
  - Different type of learners:
    - Teacher can just drop secondary digital text quickly to student's onenote if they cannot access to the text, which is super fast and convenient
    - One on one support: breakout room <math>\leftrightarrow</math> main room. Teachers are more flexible to go to different rooms
    - Small group help, more challenging in online environment
      - Sharing the work you are doing become harder in small group
      - Tactile support become harder
  - Hybrid mode: still trying to figure out how to do
  - Harder to build relationship, trust, getting them want to be there, bc better to build relationship in person
  - Every 10-15 min, require participation to keeping kids, not working well online (if kids turn off the camera, grab a water, etc)
    - Art is harder than science to check if kids are with the teacher in class
    - The way to structure a lesson is different for 6th grade is different than 9th grade
      - bc 9th grade can stay longer with deeper and more concentrate attention
    - Some teachers think it is burdensome or may just not agree the pedagogy
    - Hardest thing: manage everything at once in a digital environment while watching students doing work (multi screens, different tasks, etc), a lot to handle
  - a. How do you know whether those expectations have been met?
  - b. Are your expectations for in-person student engagement different from virtual?
- 8. What hurdles have your teachers encountered with engaging students remotely?**
- a. How has the school supported teachers encountering these challenges?



9. As an administrator, how are you helping teachers meet the needs of different kinds of learners in this format?
10. When deciding whether or not to implement emerging learning technologies in your school, what do you consider?
- Don't have direct authority to implement new tech, bc of Seattle Public School policy. Need to go through a proving process. (need to think about accessibility, etc, and experts will involve to evaluate)
  - Originally looking at a conferencing tool
- a. Who do you consult?
- b. What kinds of information do you gather?
11. What opportunities do you see in the future of remote learning?
- Recognizing online learning work for some students and not for others
    - One of the benefit online: flexibility, hope to embrace it in the future
    - The access to resources, support, learning tools. Students have Ability to continue to monitor if they are sick, have family emergency... compare to in-person classroom
    - Collaborate, work across the seattle district. E.g.: have a meeting downtown, talk to staff in different schools/districts, teachers from different schools communicate with each other... can be much quicker
    - Hybrid mode: miss online messages from students sometimes bc focusing in-person stuff, compare to fully online time. Need to think about how to manage it
12. If you had a magic wand and could help teachers better engage students, what would you provide?
- Equity, inclusive environment for everyone.
  - Most camera are off for k12
    - Bc different backgrounds, homelife.. Not safe to invite everyone to your environment
    - Student do not want to be the first person to turn on the video
    - Recreate the culture that camera is on, and safe for everyone. Eliminate that barrier.
    - To students, computers are social media. (like take many selfie pic and choice best one), they want to appear best online (one reason don't turn on the video)
    - Change the understandable culture to create the vulnerable space that it is okay not looking best online

Optional questions:

1. What are the differences between remote and in-person teaching?
- a. What are the advantages and disadvantages of remote teaching?

What tool?

- Zoom
- Team
- Mix of those
- Breakout, chat,

Other notes:

high school

- Mission - rethink high school structure, make it work for everyone
- Cross connection between all discipline (interdisciplinary), find a way to bridge them
- Stanford design model
- Create own experience, using all skill and put them in exhibition
  - Problem solving skill
  - Online digital exhibition
  - Take the ownership of what they learning

Big picture - Bellevue big picture school?