Appendix A: Bubbler-MATic Prototype (Maker Assessment Tool)

Bubbler Session Assessment

MADISON PUBLIC LIBRARY

Current session: "Trial Run (Sep 30, 2019)"

Select a session ▾

🏠 Home   🖼 Capture a moment   ‹ › Annotate   ✔ Review
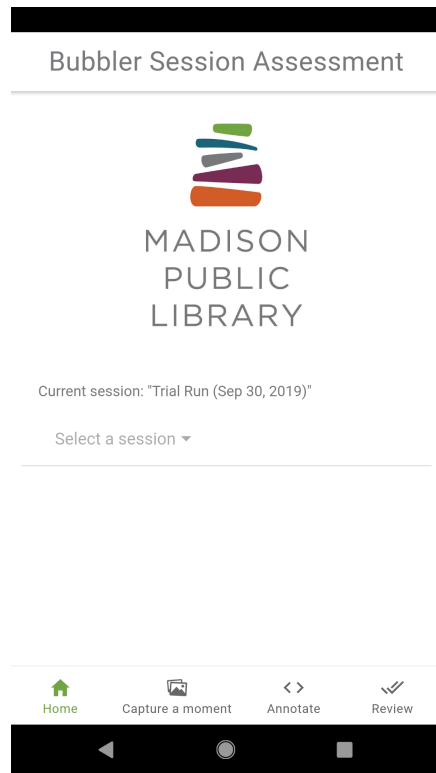
Bubbler-MATic home screen:

Users first select a session they are planning to observe. For the sake of our initial study, sessions were predetermined and preloaded.

In future iterations, observers would be able to add sessions and also provide context metadata at this screen (including age group, student to facilitator ratio, activity, or even the learning goals of an activity.)

The Buttons at the bottom remain throughout the session, allowing the user to toggle between main screens throughout their observation.

Session: "Trial Run"

NEW PHOTO 📷   NEW NOTE ☰

🏠 Home   🖼 Capture a moment   ‹ › Annotate   ✔ Review
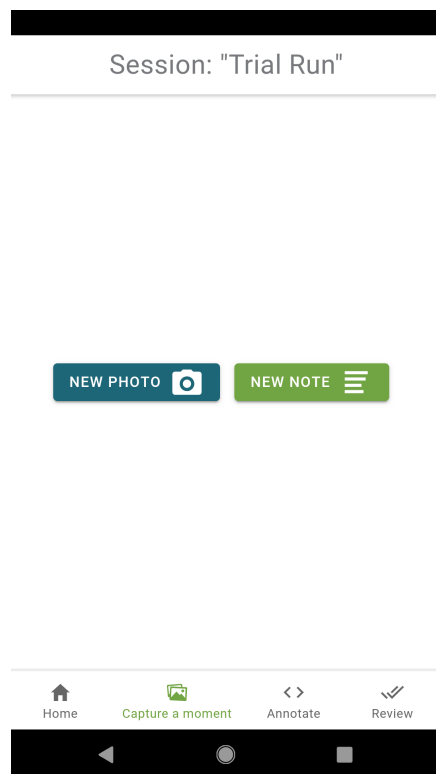
Bubbler-MATic "Capture a Moment" Screen
Once a session has been selected, observers can then choose to "capture a moment."

There are two options: a photo or a note. We have purposefully chosen to not include video as an option. It is easier to control not capturing a front view of a child's face in a static photo. This is important for privacy reasons when working in libraries and schools.

Photos are primarily taken of artifacts, children's hands in motion as they are making, or of reflective tools like our Bubbler patents or illustrations at the end of a process.

Notes are primarily used to collect quotes from children and can be transcribed using the microphone on the device or typed in manually. We have encouraged observers to also describe things they see happening, rather than their own opinions.
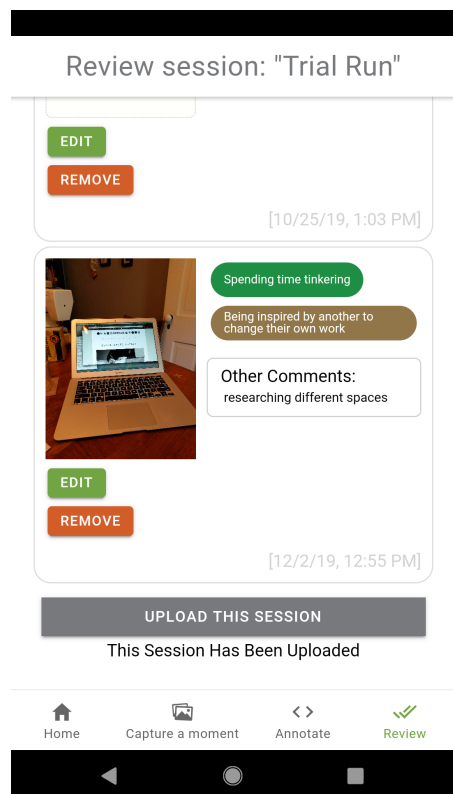
Bubbler-MATIC Annotation Screen
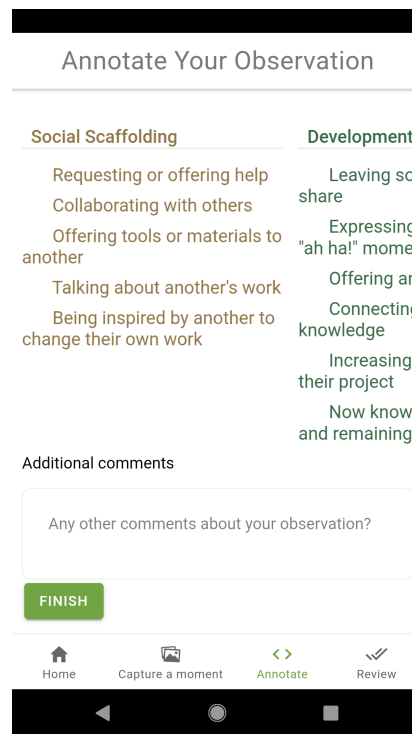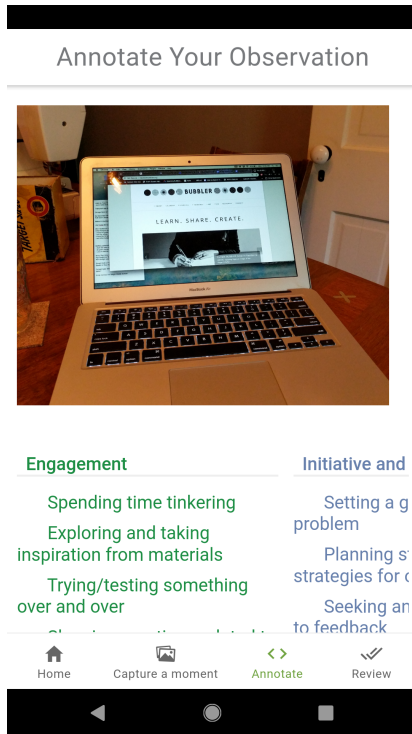
Once a photo or note has been collected, it can be annotated. There are two forms of annotations: Learning Dimension Tags and Additional Comments. More than one tag can be chosen for each photo or note, and additional comments can be added to describe what is being observed in the photo or add context to a quote.

Our tags have been refined over the last four years through our research into other learning frameworks and our own observations. They are tied to the goals of our maker program at the Bubbler. There are currently six categories of tags, but we recognize that these tags may change based on the values of the organization using them and would be alterable in other iterations of the app.

Engagement	Initiative & Intentionality	Social Scaffolding
- Spending time tinkering - Exploring & taking inspiration from materials - Trying/Testing something over and over - Showing emotions related	- Setting a goal or posing a problem - Planning steps and strategies for outcomes - Seeking or responding to feedback - Persisting towards their goal through	- Requesting or offering help or explanations - Collaborating with others - Offering tools or materials to others - Talking about another's work

to their work ● Finishing one "project" & starting another	a setback ● Taking a risk to try when unsure	● Being inspired by another to change their own work
Development of Understanding	Cultural & Emotional Connections	Adverbial Tags
● Expressing a realization or ah ha moment ● Offering an explanation for a strategy or tool ● Connecting to prior knowledge ● Increasing the complexity of their project ● Not knowing something, and remaining to explore	● Naming or creating a narrative around their artifact ● Making something for someone else in their lives ● Representing a part of their identity through making ● Connecting making to a need or problem in their life ● Expressing a desire to share with others	● positively ● negatively ● willingly ● reluctantly ● with encouragement ● independently

Review session: "Trial Run"

EDIT
REMOVE

[10/25/19, 1:03 PM]

Spending time tinkering
Being inspired by another to change their own work

Other Comments:
researching different spaces

EDIT
REMOVE

[12/2/19, 12:55 PM]

UPLOAD THIS SESSION
This Session Has Been Uploaded

Home   Capture a moment   Annotate   Review

Bubbler-MATic Review Screen

Before a session is uploaded, or before data is sent to the back end server, the observer has the opportunity to review all of their observations from the session.

They can delete entries that are redundant, further annotate entries that they did not have time to annotate in the moment, and check for clarity in the comments and notes.

One piece of feedback we received during our trial is that it would be ideal in this setting to also be able to somehow link related entries (a series of photos that shows a longer process for instance.)

Currently, the review screen is the only location where all entries (text, photos, and tags) can be reviewed together, as the back end database is not yet set up to contain photos without manual linking of the data.

Overview: In its current state, the Bubbler-MATic was designed focused on data collection, not data review. In our initial 6 week trial, we have learned a significant amount and are still reviewing and cleaning up the data collected. Our next steps will focus on the database design to make that review process easier and more efficient, and the protocols for better data collection by facilitators.

Appendix B: Bubbler designed embedded Assessments

1. Questions used to help us better observe passive behaviors or internal thinking. Asked during the making process:

    1. What is your creation's name?
        - Naming is powerful! Often connected to their purpose of their project or to a connection they have to it.
    2. What does is do/what kind is it?
        - Puts their creation in context. Allows them to articulate intentions and goals
    3. What makes it awesome?
        - Allows students to show emotion over their project (sometimes positive or negative). Also pushes students to talk about their design choices, material usage, or purpose of their invention.
    4. What do you think you'd change or do differently again?
        - This is a reflective question that allows them to think about what went well or not so well. It also encourages iteration. We often encourage them to go ahead and make another one if there is time, inviting more purposeful making.

2. Students were asked to draw a picture of their made creation or creature in its habitat.

This created a narrative for their creation, allowed them to make contextual choices that related to their design choices (obviously a creature with many eyes would see well in the dark), and connect to prior knowledge.
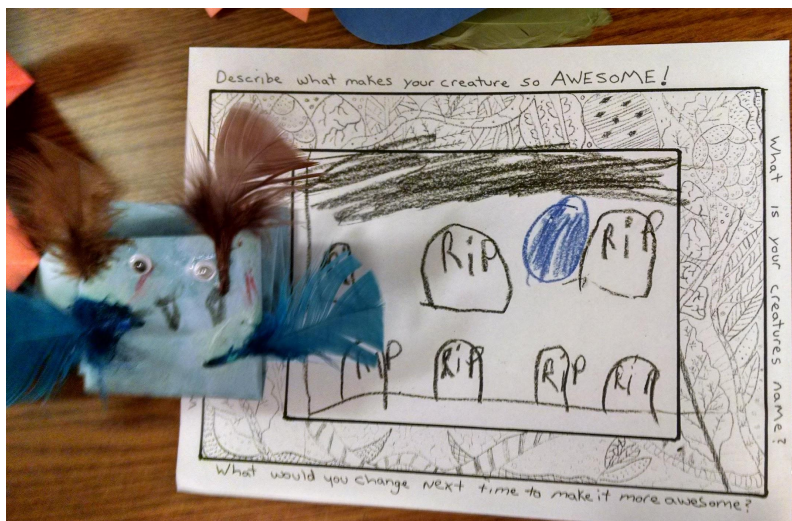
This student has created a "creepy bat" - inspired by the motion their puppet made that looked like flying. They have put its habitat at a "creepy graveyard."

3. Students are asked to create a Bubbler "patent"

This invites reflection on design choices. Allows them to state their intended purpose that is often connected to a social or emotional need or problem they are seeking to solve. This "sneaky" reflection often leads to further iterations and allows us to see the deeper connections of their artifact to their lives.

Bubbler Patent

Name of creation:

Purpose:

Sketch:

Inventor's signature:

Patent approval by: