AssessMake 21
Design Process

DESIGN THINKING WORKSHOPS

Co-design with stakeholders

Identify initial Functional Requirements

Identify initial Technical Requirements

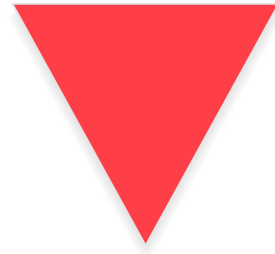# INTERVIEWS

Educators

Makerspace Facilitators

CHALLENGES TO OVERCOME

TEACHING APPROACHES

ACTIVITY DURATION

TECHNOLOGY AVAILABILITY

CHALLENGES TO OVERCOME

Depending on the when the teachers pause to allow the students to reflect (during and at the end)

TEACHING APPROACHES

How do we cater for various educator approaches?

CHALLENGES TO OVERCOME

ACTIVITY DURATION

Depending on the duration and frequencies of the making activities in schools

How do we cater for various durations so to keep the students engaged?
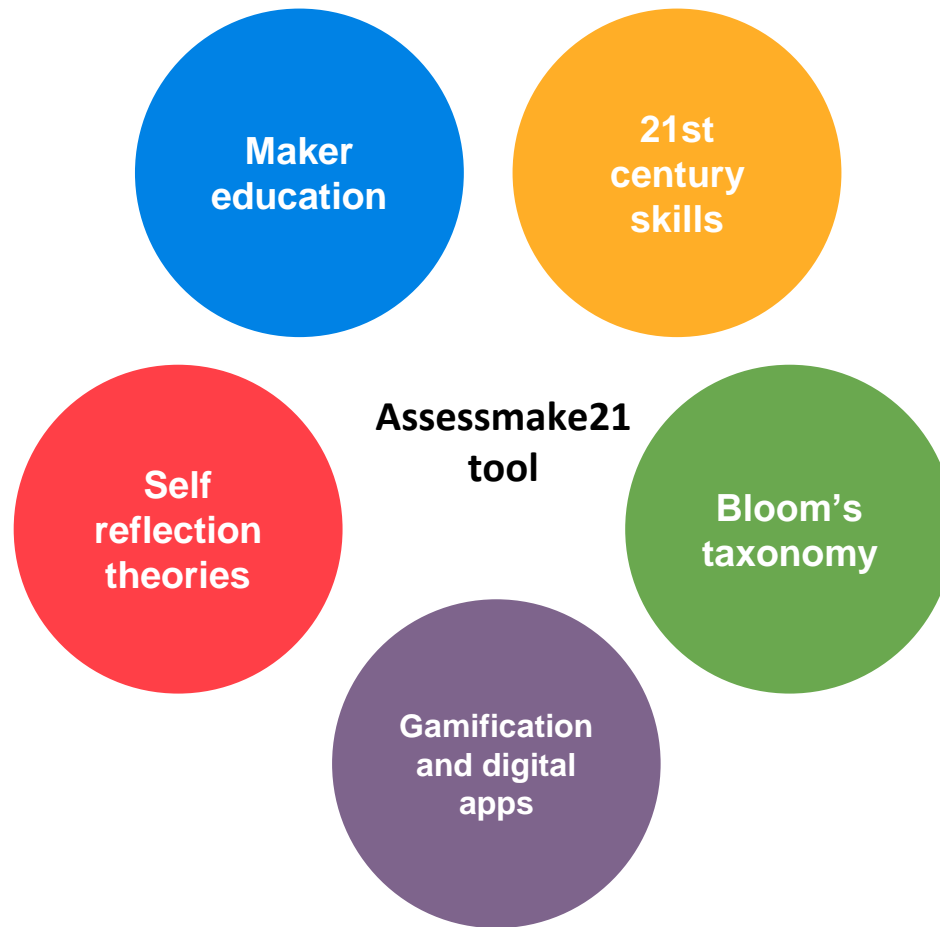
CHALLENGES TO OVERCOME

TECHNOLOGY AVAILABILITY

Schools have various devices and different operating systems

How do we cater for various devices?

Conceptual framework

Maker education and makerspaces

- Maker-centred learning is used to encourage learning through making.

- An assessment method has not been yet developed.

- Assessment in makerspace contexts should consider the nature of these activities i.e, interdisciplinary and multimodal.
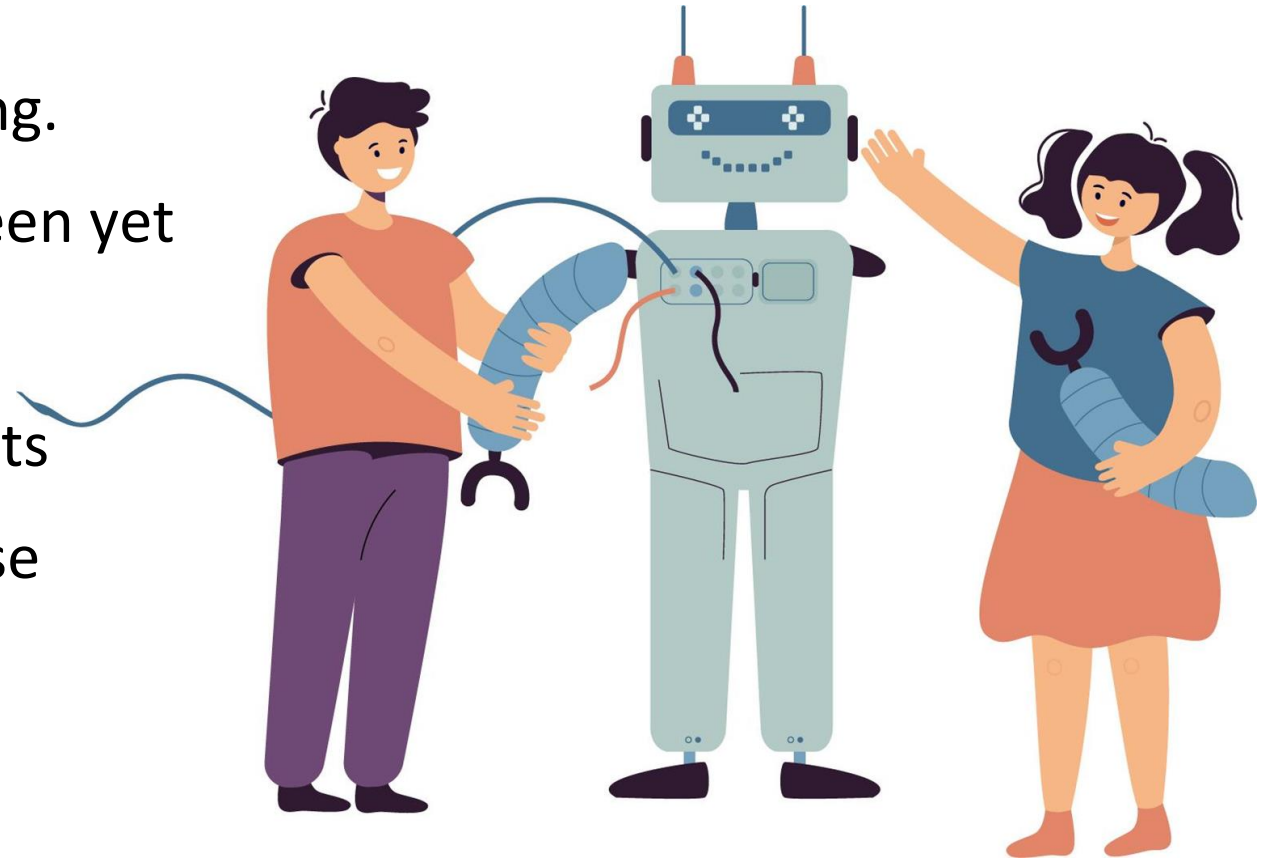
21st century skills

Teachers' contribution was crucial to clarify which 21st century skills are most developed in makerspace contexts

Our aim to assess:

- Collaboration

- Creativity

- Problem solving

- Life/social skills

- Communication

Self reflection theories

- Making requires high cognitive demands from actively participating students.

- When students are immersed in maker-centred learning, they focus less on cognitive monitoring and self-regulation.

- Assessmake21 tool helps students self-reflect on the development of 21st century skills, while making.

Gamification and digital apps

- Impact on engagement and learning for students

- Various gamified learning elements are introduced to generate meaningful results in improving the development and awareness of 21st century skills e.g levels, badges, content unlocking

Bloom's Taxonomy

- Challenges are progressing throughout the levels, based on the Bloom's revised taxonomy.

- As the levels progress, more complicated challenges require students higher order thinking, "from simple to complex and concrete to abstract" (Krathwohl, 2002).

FIRST ITERATIONS
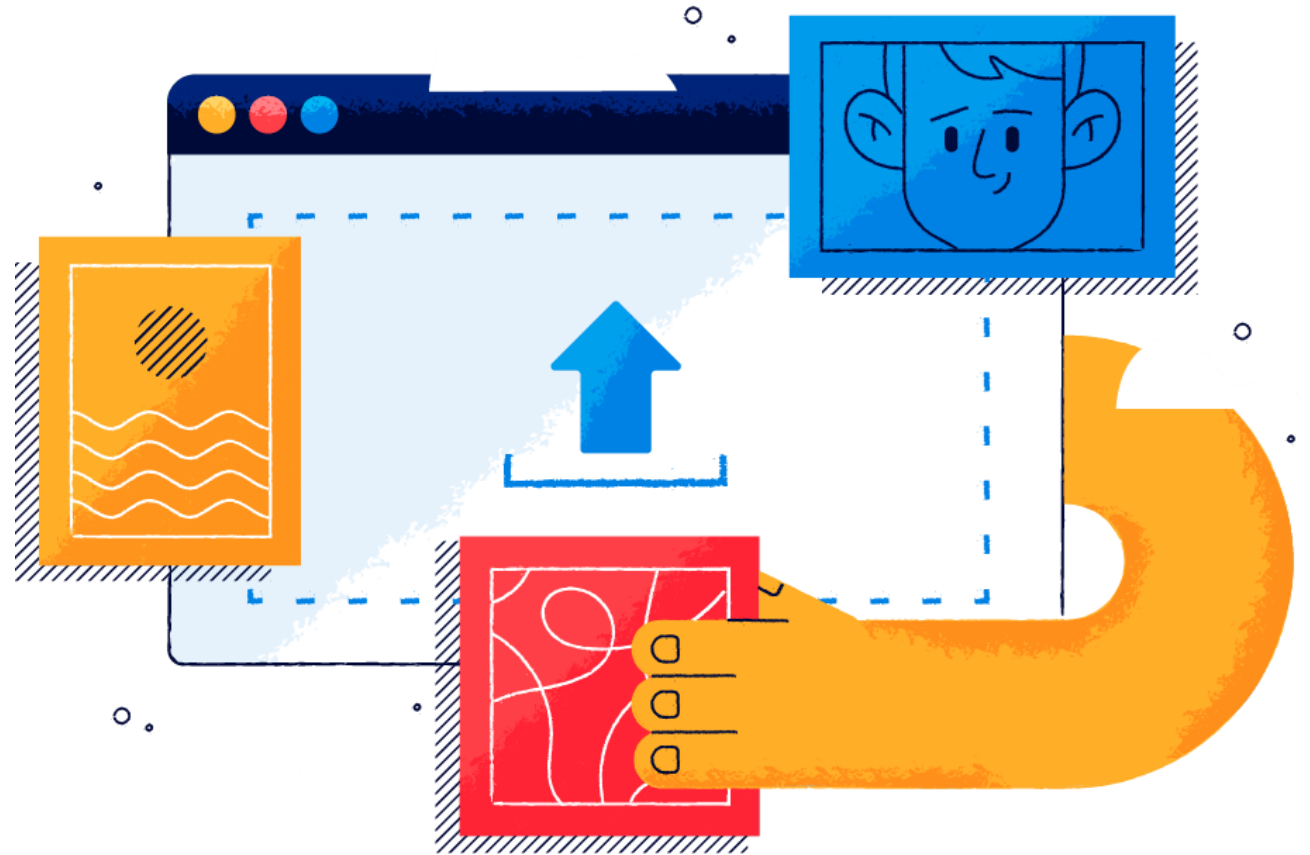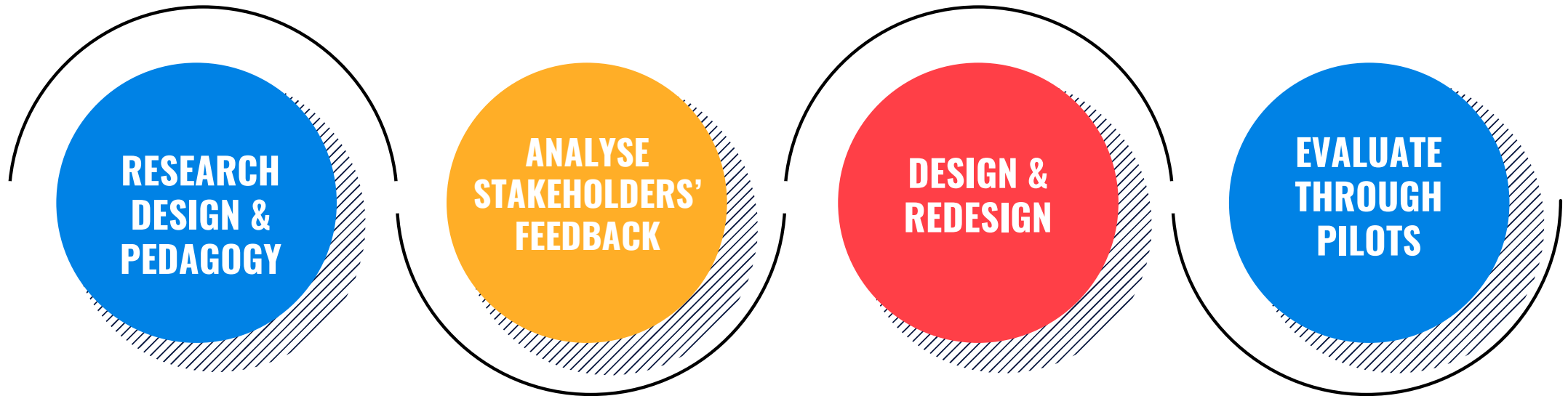
Simple low fidelity wireframes

FEEDBACK

Through:

1. Student Journeys
2. Interviews
3. Various Iterations

Stakeholders

- Educators

- Makerspace Facilitators

DESIGN CYCLES & FEEDBACK LOOPS

RESEARCH DESIGN & PEDAGOGY

ANALYSE STAKEHOLDERS' FEEDBACK

DESIGN & REDESIGN

EVALUATE THROUGH PILOTS

FINAL ITERATION

Appendix