MAP

Teams analyse their findings using mind-mapping techniques. They identify relations, similarities and differences between the examples and/or media files they collected. Based on their collected information and analysis, the teams refine their design brief, especially the design challenges, design results and audience. Then the teams record a reflection. Open ended questions can be challenging for students to answer initially. However, after passing the initial threshold, students are likely to have inspiring ideas. Classroom time: Approximately 1 lesson

Ideas for using technology:
- **functionalities: 1. mind mapping**
- **tools:** post-it notes, Bubbl.us, CmapTools, Popplet, Mindmeister, Freemind, TeamUp, ReFlex

You may look forward to...
- hands-on active and visual engagement with collected information and data
- progressive data analysis
- using novel tools

Your students may learn...
- to professionally analyze information collaboratively
- more in-depth understanding about their topic
- to recognize relationships between findings

1. Prepare / Listen
- Listen carefully to the student comments, and shape the activity according to their needs and interests.
- Expand your competence and expertise, by exploring digital mind-mapping tools and ensuing students can easily add their media files to the tool.
- Arrange pens, paper, post-it notes, tape, scissors and glue. Set up the space by arranging walls or large papers for students to group and stick their paper notes on.

2. Inspire
- Engage in a pedagogically meaningful conversation with the students about the data they collected: What did they collect, and how is the information meaningful for their project?

- For easy access, ask the students to move all of their information and data into one location and share it with everyone.

3. Coach / Question / Support
- Students write all information and data in the form of headlines, short sentences or figures on post-it notes or small pieces of paper, and group their notes. Alternatively they may use the digital mind-mapping tool you set up. Coach them how to best represent some of their findings by drawing the initial notes or making supportive suggestions.
- Support the teams to visually present relationships between the notes when grouping the data, for example, by drawing lines between information, placing notes hierarchically, or other spatial arrangements.
- View and discuss the relations with the students. Ask open ended questions to challenge their assumptions, for example, (a) what are the similarities and differences between the examples they found? (b) What additional challenges can you recognize?; (c) what would you like to adopt or try out? (d) what would make your design unique? (e) Does the design brief need refinement? How does it need to be refined?; (f) How does the exploration relate to the design? (g) What design decisions would result from the exploration? (f) What are emerging project ideas?
- A more full-body involvement of mapping ideas can be achieved through spatial grouping of ideas and collected information. This can might support learners to focus, as they can stretch their arms to place a post-it note to a specific location dedicated to e.g. challenges
- Teams list identified similarities and differences, and update their design briefs, particularly in relation to design challenges, design results and audience.
- They document their findings on their blog, including sketches of emerging project ideas and record a reflection. You can record a reflection for each team providing feedback and evaluative comments to each student work. Their reflections can be used for assessment and for staying focussed on the task.

4. Assess
  - Review the work of each team, their reflection recordings and blog entries, to ensure everyone explored and collected examples and/or media files. Then record audiovisual feedback for them. Your feedback might include suggestions and questions about how successful the technique was implemented, how it could be used for future projects, and how it could be done better next time.
  - You could assess the teams' ability to identify design challenges, to draw relationships between observations and examples
  - You could also ask the students to grade their teammates' contributions, using the student grades to help form your own assessment.

REFLECT

Students and the teacher record, post and share audio-visual reflections and feedback of project progress, challenges and future steps. The students slowly build a shared collection of ways to tackle challenges, which can be used after the project ended. Classroom time: Approximately 10 minutes

Ideas for using technology:
  - **functionalities: 1. audio/video reflection.**
  - **tools:** TeamUp, ReFlex, Redpentool, Voicethread

You may look forward to...
  - reviewing team progress quickly and comfortably at any time and anywhere
  - providing personal feedback to teams
  - a more fair distribution of support beyond the classroom
  - spending less time recording feedback for students
  - providing students with personal feedback through gestures, tone of voice, background information (your home, garden etc.)
  - using the recordings to better communicate with parents about school activities
  - developing a collection of comments to your students
  - building a resource of reflections made by students
  - using novel tools
  - develop technical, organizational and pedagogical competences
  - acquire a repertoire of using reflection for multiple purposes

Your students may learn...
  - to summarize, communicate, present and plan their work in progress at anytime and anywhere
  - to reflect on their work
  - to provide and receive criticism

1. Prepare / Listen
- Develop your competence and expertise, by exploring how often and by whom reflection and feedback could be used in the learning story and by decide on the reflection tool that you would like to set up and use.
- Before recording another feedback or reflection listen to the previous one.

2. Inspire
- Motivate the students to reflect on their work by expressing the benefits and reasons for reflection, for example easier review of the last steps, catching up after an absence, receiving direct feedback from the teacher.
- Tell your students that in design related learning projects, regular reflection can support letting go of initial, not very good, ideas and to develop the feeling of ownership.

3. Coach / Question / Support
- Teams reflect on what they did, what they plan to do and the challenges they encountered or can foresee.
- The first reflections may be difficult to record smoothly. Coach students to overcome initial feelings of frustration or inconvenience. Be assured, after recording a few reflections, you will start to recognize the value of your investment.
- Teams listen to the recordings by others and record questions and tips for them. Coach and support them in doing so.
- Listen to the recordings and adopt your teaching to the needs of the students.
- Record audio-visual feedback for the teams, including questions and suggestions that may inspire the teams to think further, based on the student reflections.
- Experts may be invited to record feedback to the student teams. Their feedback is may become ubiquitous, and a source of inspiration for the students in the years to come.

4. Assess
- You may assess based on the student's ability to listen and react to your constructive comments, or based on the depth or relevance of their reflections.

* * * For abridged stories that ends after the first reflection activity * * *
Assess
- Review all work. Compare everyone's progress updates with their presentations to see if all important steps are included in the presentation.
- Review all reflection recordings and discuss the process with the students. What was their experience like? What have they learned? What would they like to explore further?
- Student work can be used for open feedback and reflection sessions.
- You could assess the documentations for their value as resources for exam preparation.