1. Why sketching?

Although a 'visual' could be created or presented in many ways, it all starts with a sketch, or more specific: with the activity of 'sketching'. Sketching is flexible (easy to add changes), fast, communicative, it allows for personal signature, it could bring information (push), or it could question a certain starting point, be open for interpretation (pull), or instigate discussion, etc. In many design processes, the sketching stage forms the fundament for the subsequent stages that follow (once a concept is getting concrete), at the same time a sketch serves very well as a stand-alone output format.

Sketching helps to 'externalize' initial thoughts, to reflect, to develop, and/or to communicate with others. The word 'visualization' here would refer to the sketcher's reciprocative activity of transferring an idea onto paper, reflect on it, improve, adjust, develop new directions or iterate, reflect again, etc.

According to John Ruskin, art critic and social thinker (i.a.), the discipline of drawing tunes the sensitivity of the drawer to a higher pitch; it refines the drawer's vision. Instead of taking pictures, one should draw the observed, is what he pledged for. In short, drawing sharpens observation, it increases perception, and it supports visual imagination. According to literature and various scholars, the activity of drawing is one of fundamental relevance to human development. Representing thought and action while drawing helps developing children's understanding of numeracy and literacy.

According to D.A. Louw, drawing serves as basic means to support and express creativity and feelings. It is closely linked to the capacity to think and feel. Some state drawing is a therapeutic tool that helps clearing one's mind. The activity of capturing a scene or object with a line on a canvas is a very helpful way to better understand that very scene or object, and of how they're affected by linear and aerial perspective.

John Ruskin: 'There's one thing we should do and that is 'attempt to draw the interesting things we see, irrespective of whether we happen to have any talent for doing so'.

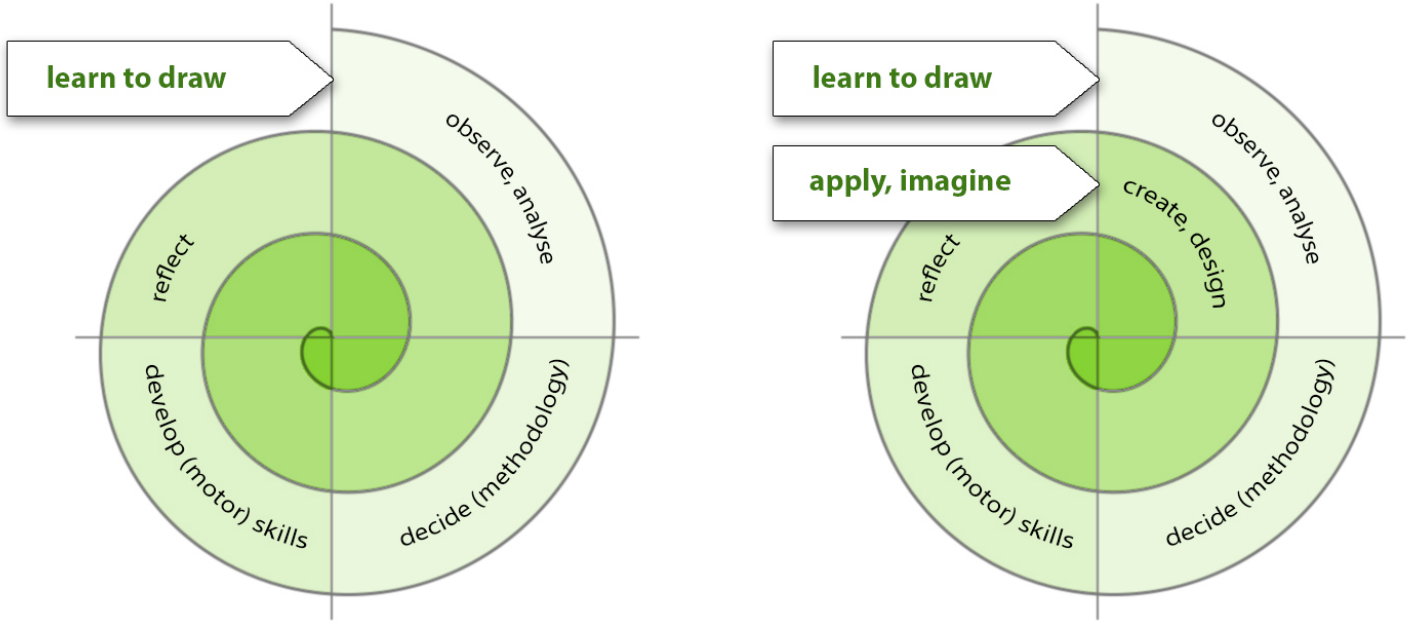
Briefly, the purposes of design drawing (education) for students are the following:

- Increase awareness of ones surroundings, space
- Increase product design knowledge
- Learn methodology considering perspective, accurately constructing volumes, considering viewpoints and composition, applying shading and suggesting surface behaviour. Clarity and accurateness are more important than aesthetics of the drawing.
- Learn to decide, and learn from mistakes
- Develop (motor) skills

When choosing and depicting a representation of the observed or an 'expression' of the imagined, at the same time student practice their motor skills: learn to apply vigour, dynamic, signature, eye-hand coordination.

Learn to Reflect: one of the best ways to learn is from reflecting on your own work: what went well, what went wrong, why? Reflecting obviously comes before redoing, adjusting, customizing, and reflection as a major aspect of learning to observe and anticipate. Learn to Apply, imagine: In reality, imagining is not a separate activity or stage; it is an integrated part of design exploration, helped by drawing and analysing.

These learning aspects are summarized in a range of didactical stages, as depicted in the following figure; the didactic spiral of design drawing. In short: In order to be able to freely and comfortably apply drawing as a design language, the spiral model suggests to run a range of returning learning steps (1st cycle). Learning and applying go hand in hand (2nd cycle).



learning the language

applying the language, and keep learning

Figure 1 - The didactic spiral of design drawing

2. Some typical ways of applying the medium of sketching:

Ideation sketches, or 'exploration' sketches can help spark creativity in all directions: they could concern aesthetics, functional solutions, options for assembly, colour combinations, interfaces, lay out, exploration of scenarios, etc. Of course an ideation sketch should not include too many details yet; it is just the first stage. But, although quick and sketchy, these ideation sketches should be clear and accurate; they need to convey the right information and they should allow for reflection and discussion. Drawing can serve as a fundamental training activity and as a universal language for people, specifically for designers, to depict things and concepts on a 2d canvas. Acquiring the skills and knowledge of drawing objects in perspective serves as a fundament for drawing and visualising nearly anything: from technical lay-out sketches to stories to journeys.

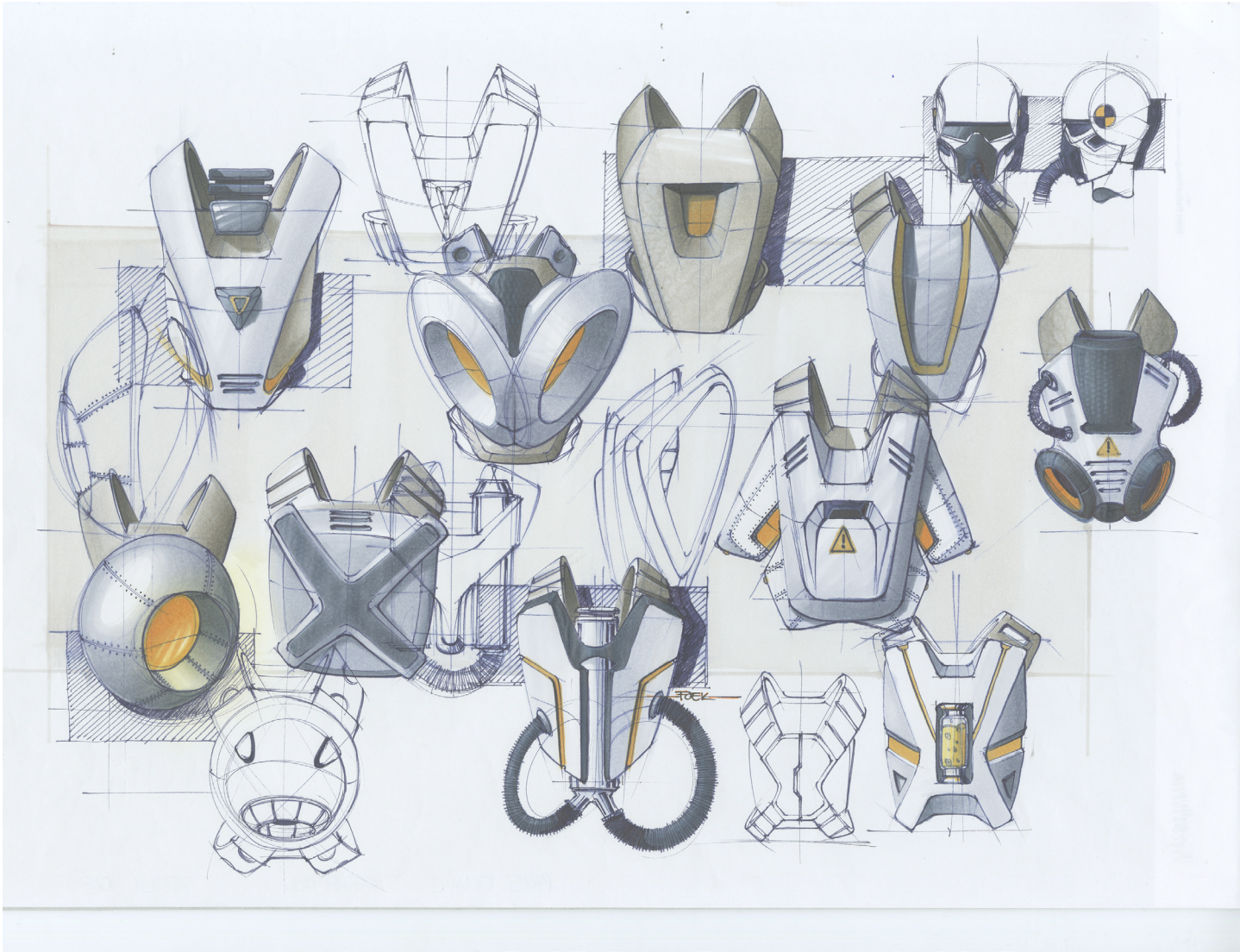


Figure 2 - Ideation sketches

3. Free form sketching:

This method could help to spark your imagination when designing shapes. When understanding the principles of perspective and cross sectional construction, a next stage of complexity could be the imaginative creation of free form shapes. This method starts with a random contour line. Next, one has to decide how cross sections could help describe the shape that is being developed. The following step requires applying shading, preferably using a soft medium such as pastel or a digital airbrush, probably accompanied by dark a core shadow and or suggestions of cast shadow reflection. The drawing can be finalized by adding details, emphasizing contour lines and adding global- and highlights.

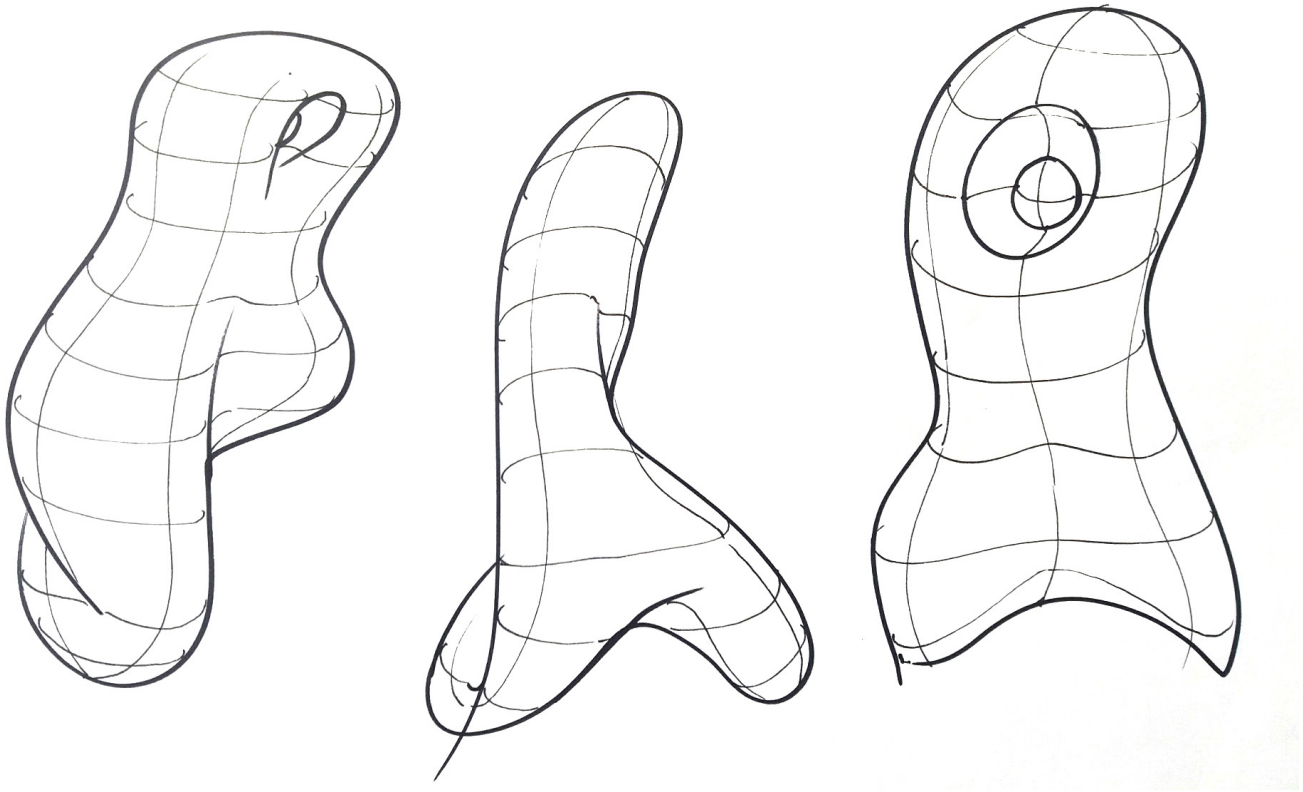


Figure 3 - Organic shapes outlines and cross sections

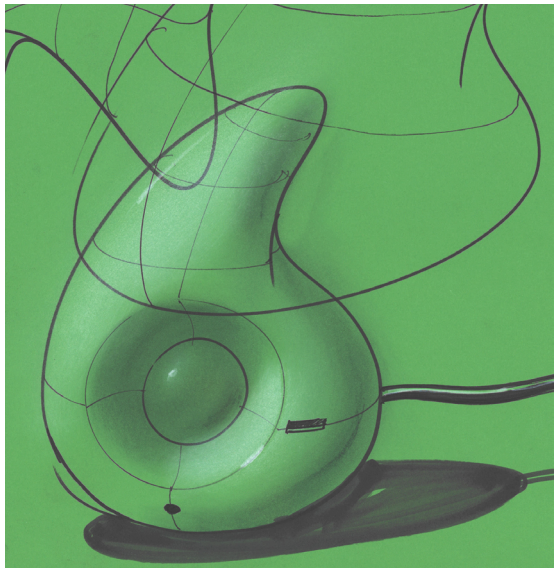


Figure 4 - Organic shape shading

4. Process sketching:

The use of sketching to help visualize and understand complex processes or situations has emerged as very valuable skill. The strength of visual thinking is not just getting to an image that helps communicate complexity in a more easy to digest fashion (the image) but more so the process getting there. Thinking and discussing will lead to a better understanding of the complexity and seeing the bigger picture. Drawing and thinking together will align thoughts within organisation and create mutual understanding of strategies and vision.

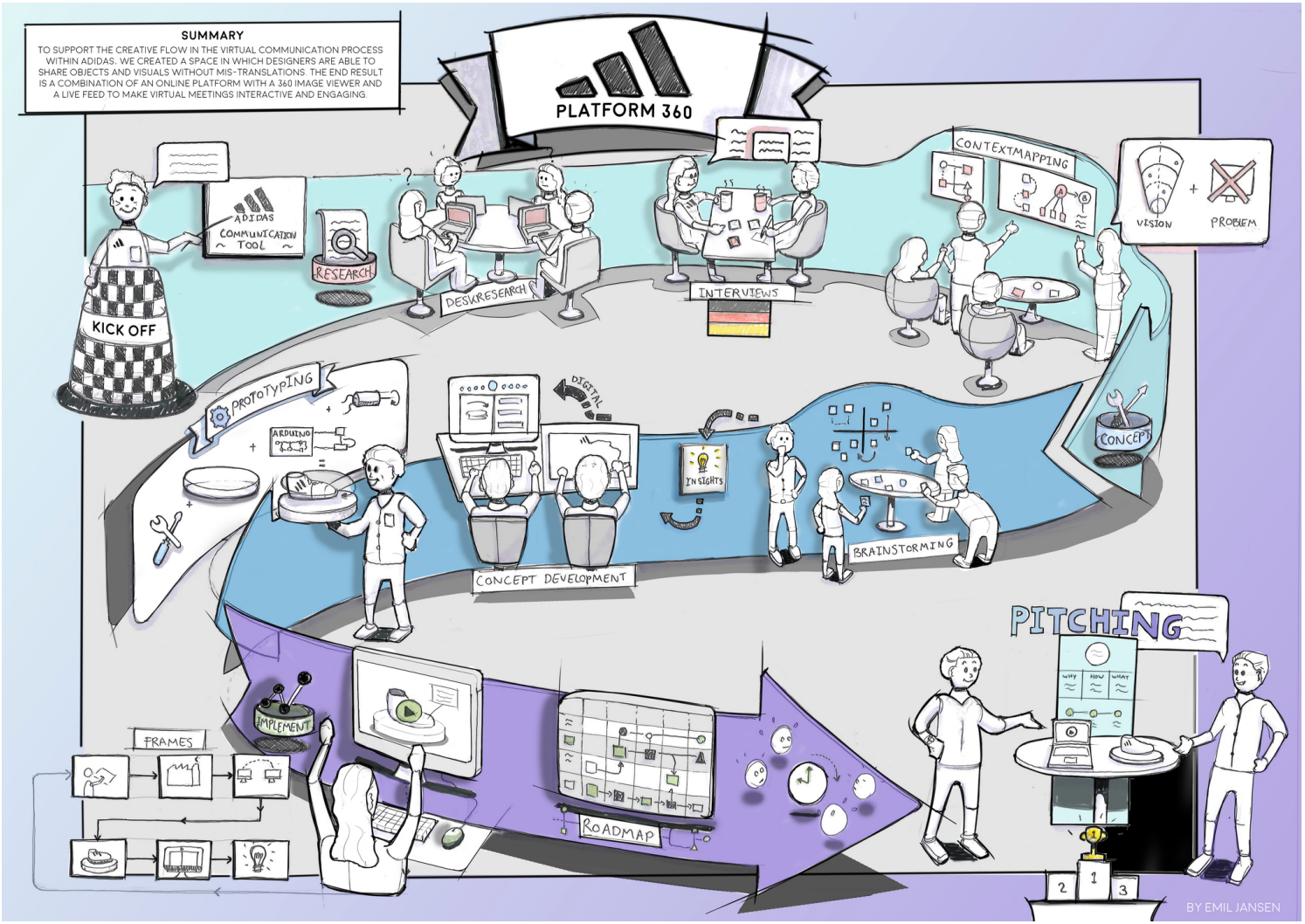


Figure 5 - Process sketching