EXPERIENCES IN USING BLENDED LEARNING TO OPTIMISE DESIGN SKETCHING EDUCATION

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ABSTRACT
The development of a student's sketching skills partly depends on the structure in which the education is being organized. In our classroom experiences over the last ten years, it became harder to reach the students with regular classical education in workshop format. On the one hand teachers are forced to improve their efficiency and on the other hand the attention span and focus of the students seems to diminish. All together leading to lower competence levels. Classic teaching techniques are still very useful, however they can be transformed in such a way that they connect better to the context of the students and become more attractive to them. This observation led to the development and implementation of an online learning platform which created new possibilities for different kinds of blended learning. Several experiments have led to new insights in teaching methodology and to improvements of the digital platform and how it is being used in education. Experience with over 500 bachelor students of Industrial Design Engineering showed that a digital learning environment creates several advantages without having to lose the strengths of regular classroom education. It connects better to the students' modern experience and gives a wider variety of tools and stimuli to reach them. Especially the possibility to review tutorial videos seem to have great impact on the development of the basic sketching skills. Besides this, improvement can be seen in soft skill development, including self-confidence and critical attitude.

Keywords: Sketching, blended learning, design education, student development, learning platform

1 PROBLEM STATEMENT
Sketch education, which is mainly focusing on hands-on skill training, has a high intensity and is time consuming [2]. Teachers experience lack of time caused by increasing student numbers and decreasing budgets and are often focusing on efficiency [1]. Students of the current generation lack concentration and interest caused by their fast moving online life [4]. Therefore, interaction and communication between these two groups becomes more difficult.
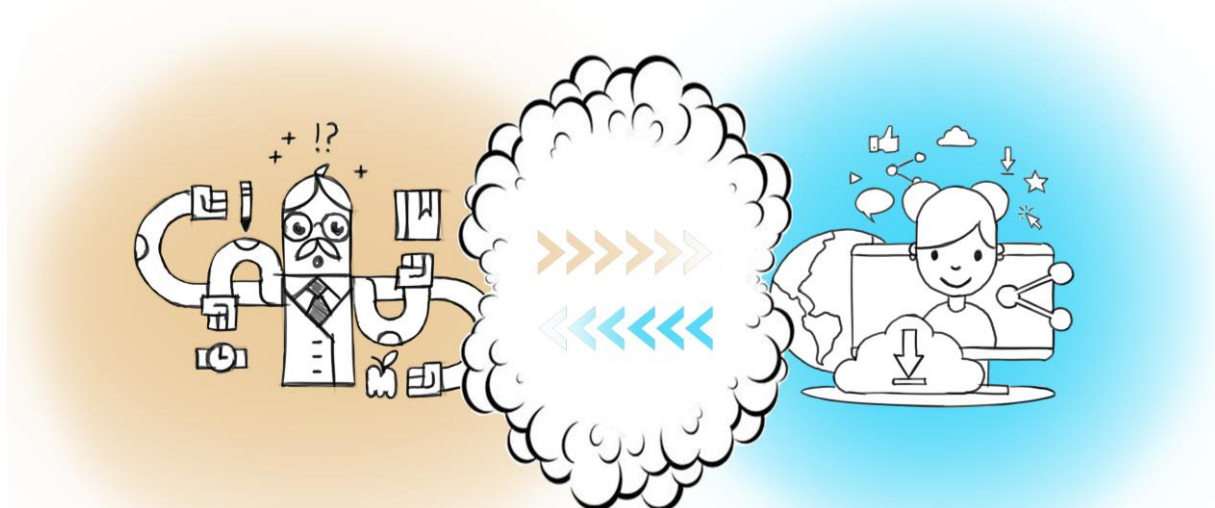
2   CURRENT SITUATION

Regular education cannot seem to prevent the students from getting diminishing levels in sketching skills. This is partly caused by the lack of awareness of the need of proper sketching skills with little interest in the subject as a result [5,7]. Besides that, distracted and troubled minds during sketching exercises also lead to lower sketching competence levels [8].
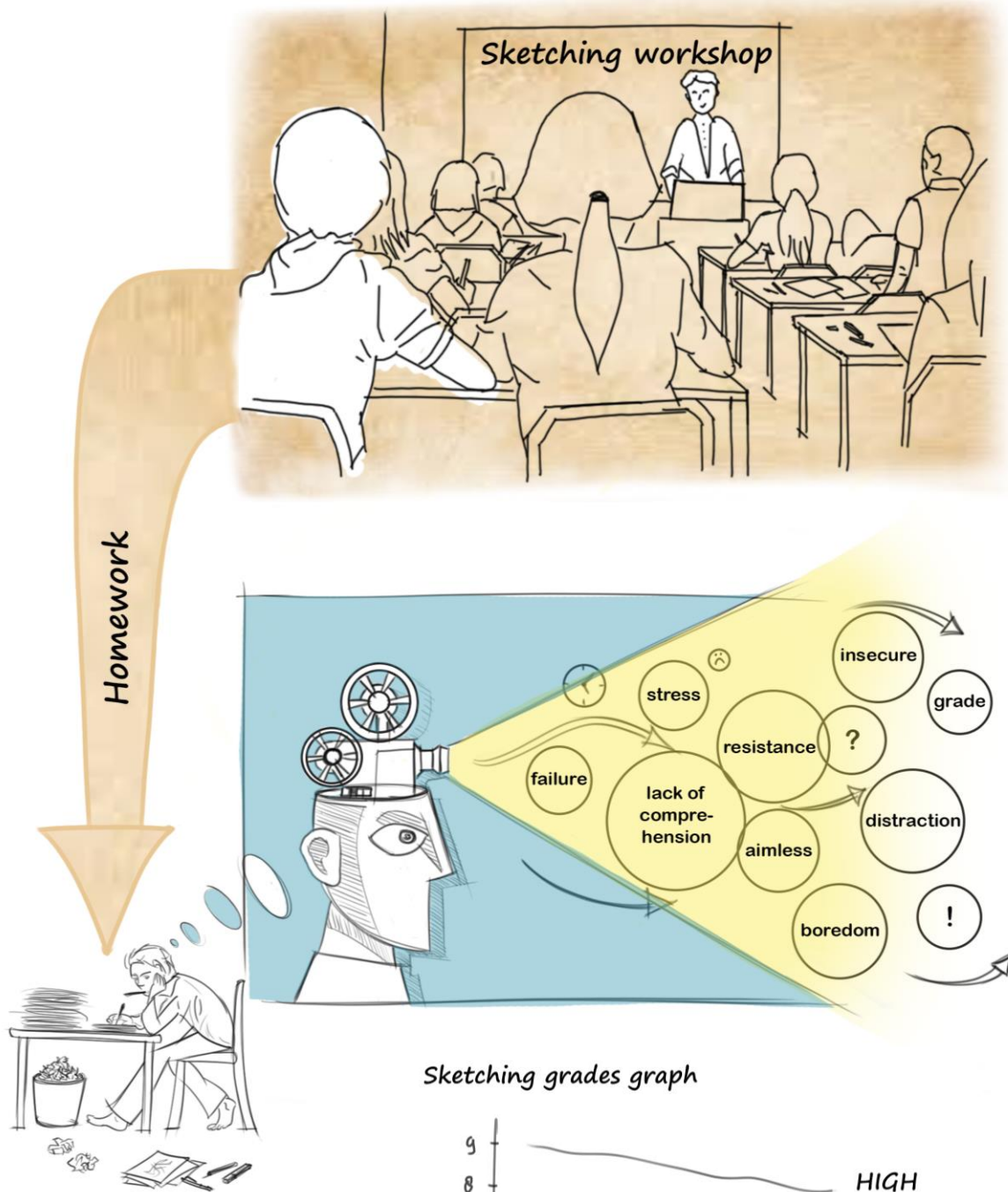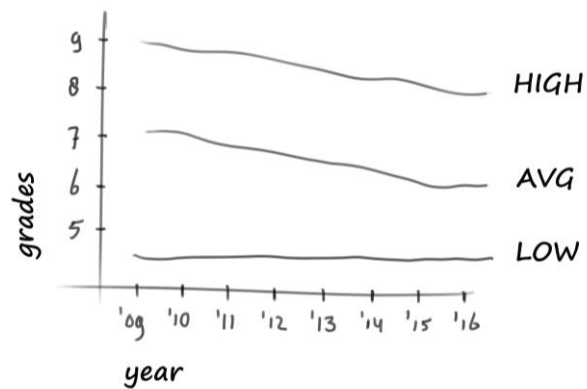
3   INTERVENTION

Sketching is still an essential competence within product development and leads to better products [6]. Students that are sufficiently skilled in sketching become more successful designers [3] and have a higher chance of getting invited for design jobs [5]. Therefore a solution to increase sketching skills is necessary. Research and experience showed that a wider variety of stimuli and tools are needed to get the student to a higher level. Several soft and hard skills are easier to obtain using blended learning in education [7]. Integration of a multifunctional digital platform could lead to a more diverse, more stimulating learning environment. Using modern technology will give the students a teaching environment that matches their online experience [4]. For these reasons using blended learning as a supposed solution to facilitate the suggested changes might work out well.
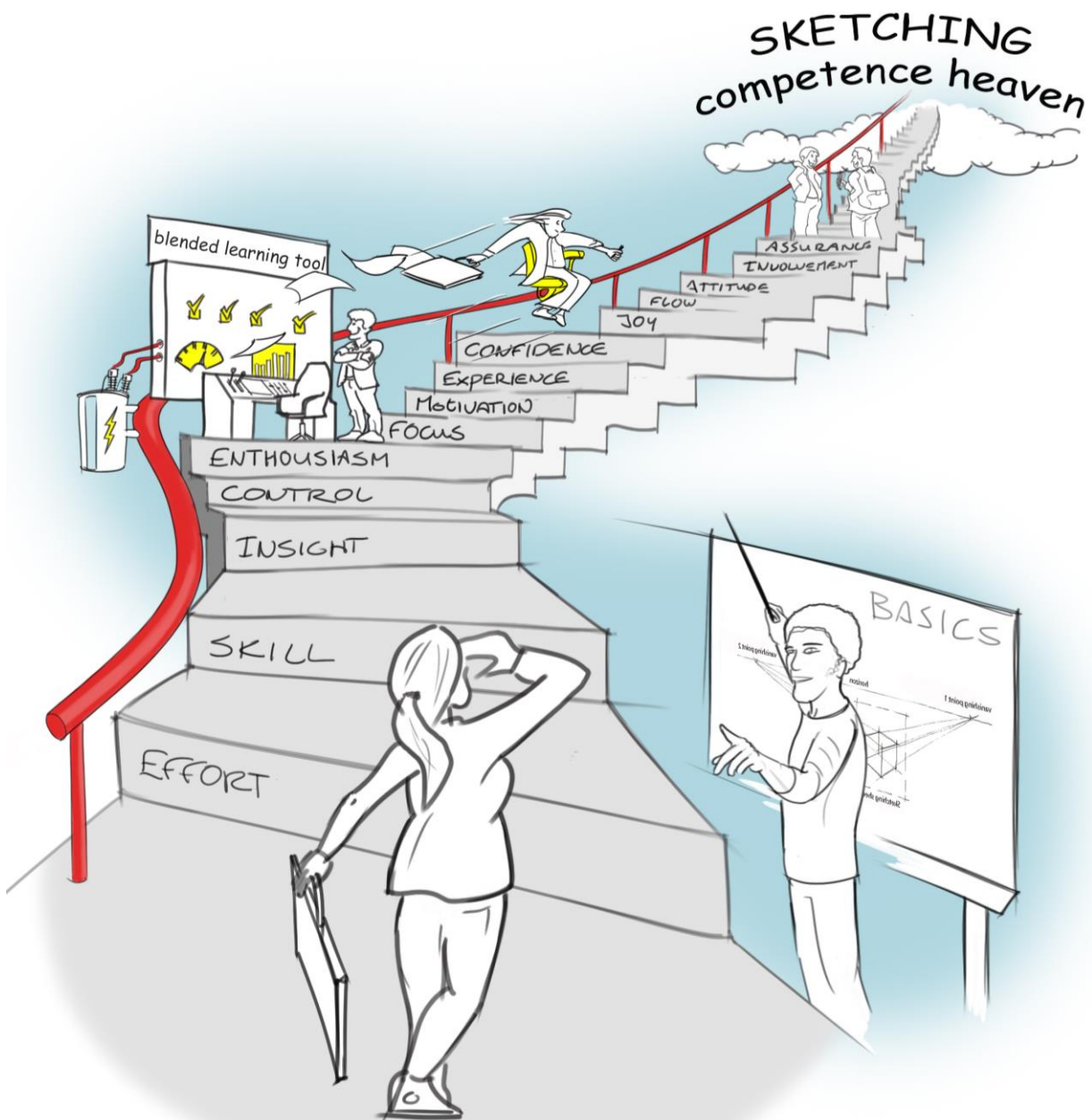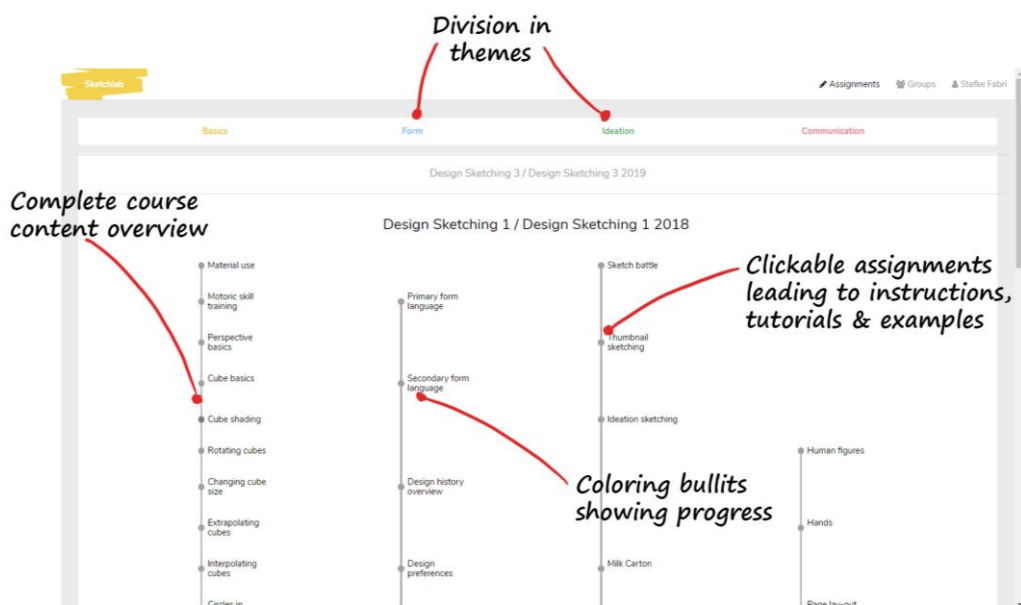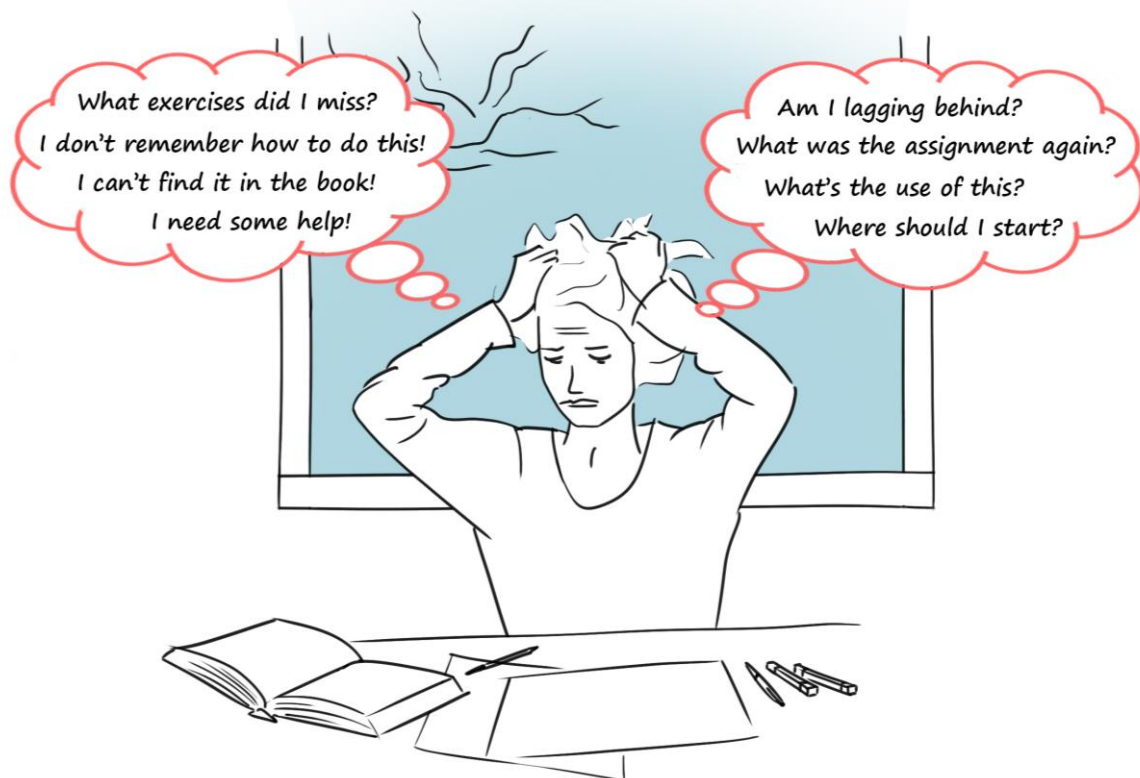
4 TRANSLATION OF EDUCATIONAL TECHNIQUES TOWARDS A BLENDED LEARNING TOOL
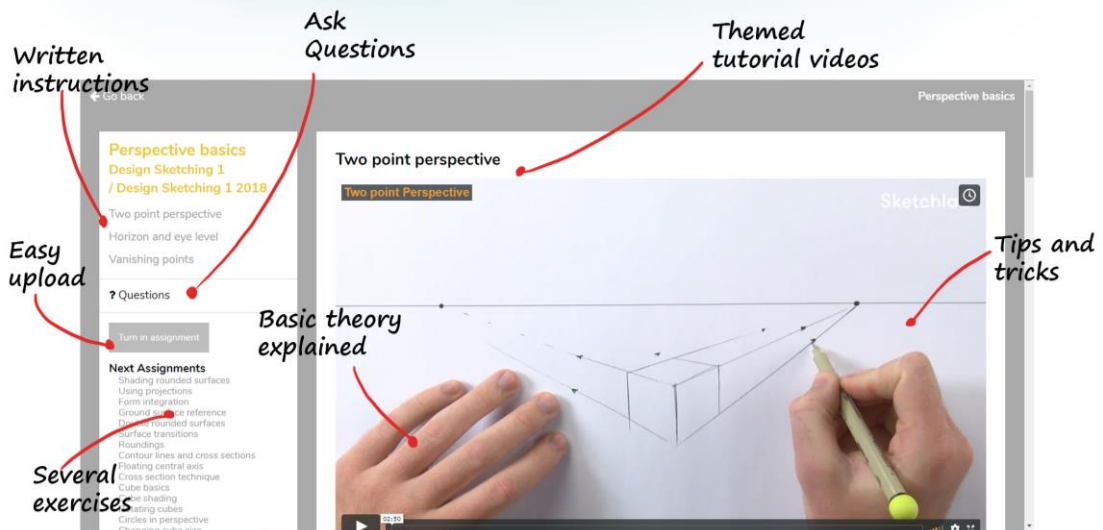
Regular educational activities can be translated into a comparable digital version but a digital platform can also provide extra support and improve education in different ways. A thorough study of flaws and bottlenecks in current education defined goals that have been translated into digital solutions [4]. The created platform [11] therefore has 5 essential main functions:

1. Skill training [4,8]
2. Instruction [4,9]
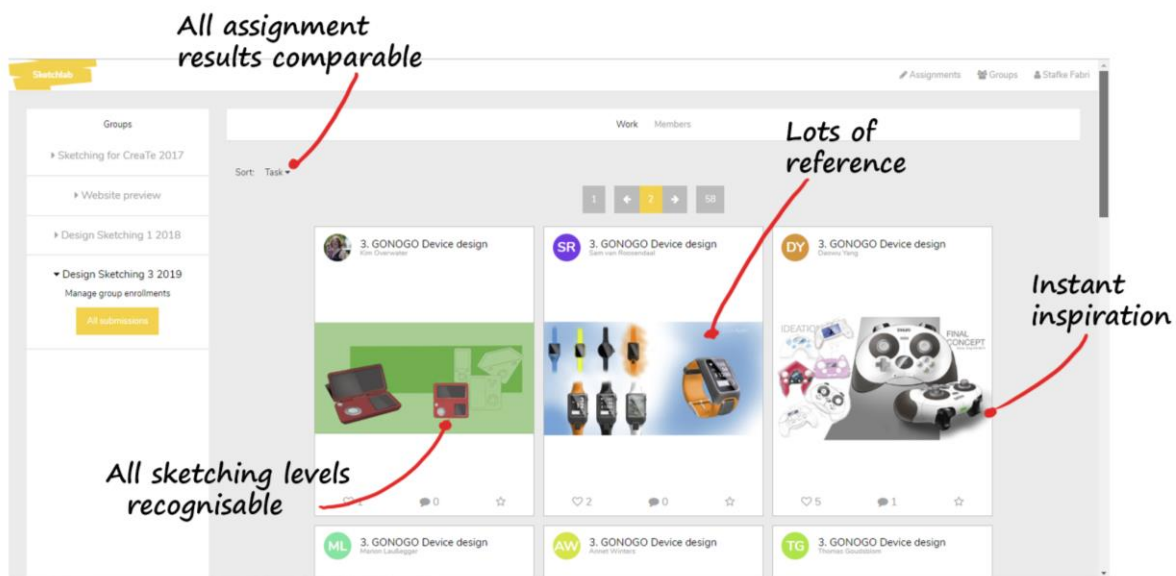3. Reference [4,8]
4. Feedback [4,10]
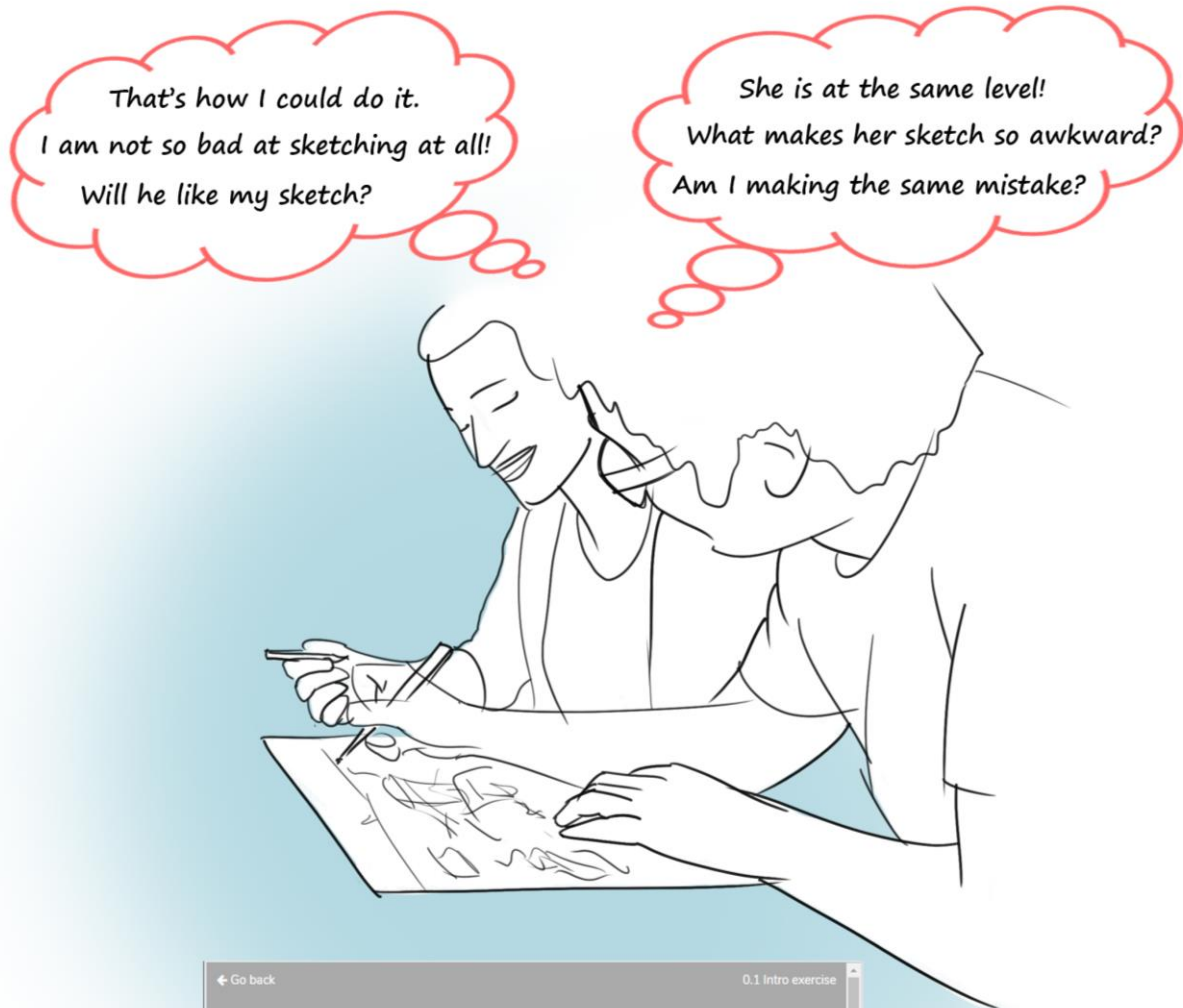5. Portfolio [1,4]

4.1 Skill training

4.2 Instruction

4.3 Reference

4.4 Feedback

4.5 Portfolio

5   NEW SITUATION

Introduction of the online platform and experiments with blended learning led to students using the created tools in both classroom setting and during homework activities. In the classroom students were able to do assignment more autonomously with the help of instructions and video tutorials leaving more time for live feedback. The use of video tutorials has been monitored and showed use on a regular basis outside lesson hours. Students enjoy giving and receiving likes and compliments to each other in small peer-groups. Adding visual feedback let student-assistants make corrections in digitalised sketches in a quick manner. It became easier to get insight in the current level, specific flaws and growth of students by using the portfolio function. Students also get to see a wider variety of examples, giving a better insight in their own level and giving inspiration for improvement.
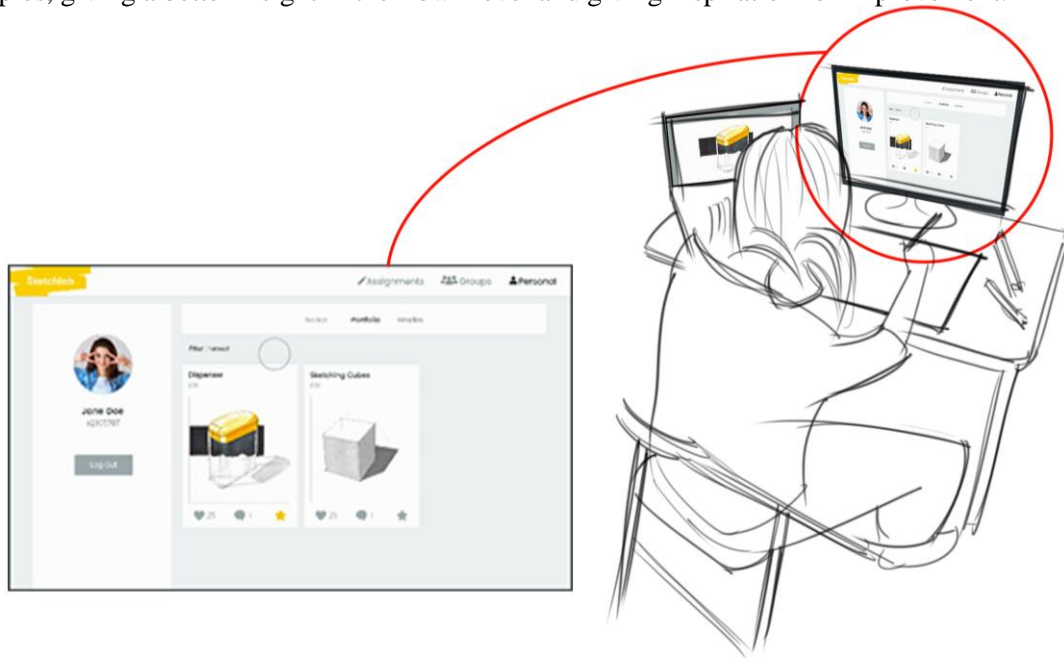
6   BENEFITS

From the first tests within three different sketching courses can be concluded that blended learning gives several clear benefits to both student and teacher. This accounts for both soft and hard skill levels but also in the way lectures and homework are experienced. The flexibility increases the variety of activities in class and also changes the way students study at home.
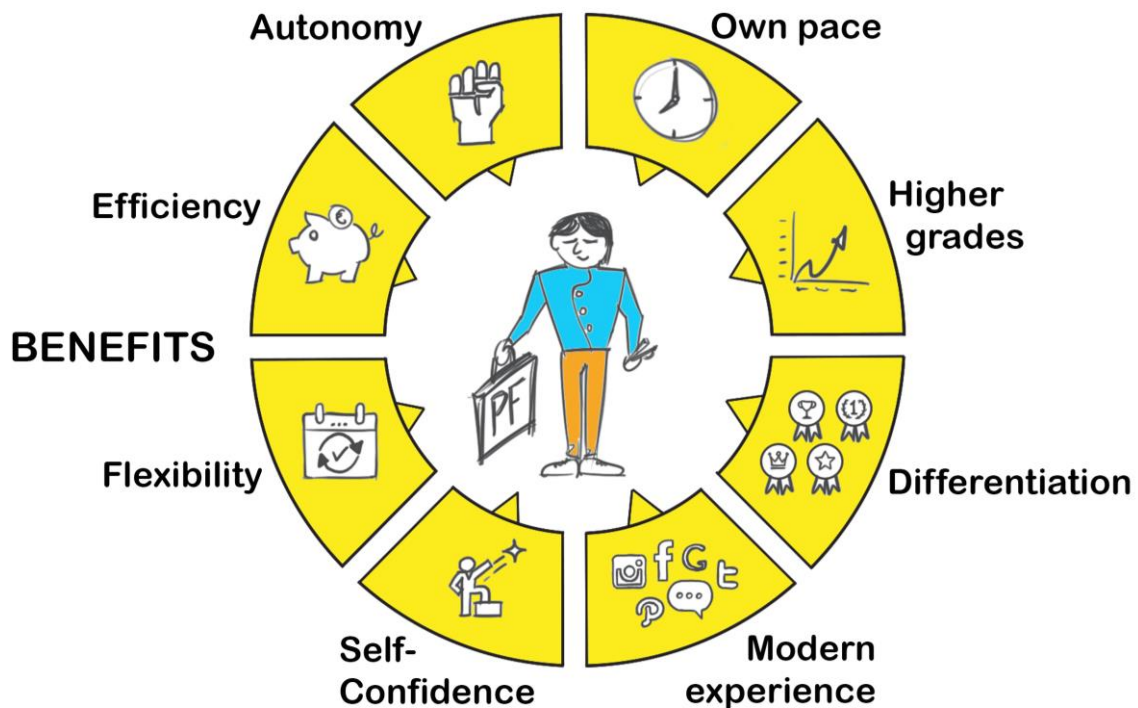
7   DISCUSSION

Despite the large amount of positive developments that can be seen after optimising the courses by introducing blended learning, it is still difficult to relate the positive changes solely to the development and use of the online platform. However, using control groups to measure differences in development in relation to education cannot be used intensively because it is unethical to give one group education in a less optimal manner. Besides this there are a lot of other variable factors when giving education to several groups which make taking reliable conclusions impossible. This means that it is more viable to monitor course improvement the years and on the basis of student course evaluations. It is also important to take into account that building an online learning platform and experimenting with blended learning consumes considerable amounts of time and money but can deliver long term advantages in efficiency and student results. Regrettably, the optimum in the balance between digital and analogue sketch education has not been found. However, our experiences emphasises the necessity of face to face education and live interaction and feedback as the essence of skill training.

8   CONCLUSION

The described tools for blended learning can be well used to optimize education in which motor skills have to be trained. Experience with 500 students on teaching sketching skills for designing has shown that using an online learning platform with a wide variety of learning tools helps to develop skills faster and to a higher level. The full-time availability of regular classroom education techniques like (peer-)feedback and showing reference material can make a noticeable difference in how and when the student works. It also supports more differentiation as students can dive deeper into specific subjects of personal interest and can set their own goals. Especially the availability of a wide variety of reference material and tutorial movies has rendered good results in our sketching class practice.

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