

# DOES THE IMITATION OF THE SKETCH STYLE OF GOOD INDUSTRIAL DESIGNERS INFLUENCE STUDENTS' DRAWING SKILLS?

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## ABSTRACT

The importance and value of hand drawing and sketching activity in the early stages of the design process has already been extensively argued. Ideation sketches are used as a source of inspiration and the whole process of iterative sketching helps in structuring, developing and communicating the design process. The act of sketching and the number of sketches made during a design process have a positive effect on the quality of the design outcomes. But also the quality of sketches has its influence: an explorative design presented by a high quality sketch is more likely to be ranked as the most creative idea when compared to a sketch of the same idea drawn with lower quality [1]. And in an industrial design educational context, the better sketching students are more likely to score higher for design projects [2]. The statements above support largely the importance of sketch courses in an industrial design educational curriculum.

This paper describes an experiment with 2<sup>nd</sup> Bachelor year students product development, where students, in the sketch phase of their design project, were encouraged to imitate the sketch style of good industrial designers. The main aim was to test if the regular practice of imitating the sketch style of professional designers may or may not have a positive effect on students' sketching skills over time. Based on the results of a survey conducted after the experiment, one can assume that this approach improved the sketch-confidence of students and, according to their subjective assessment, the quality of their sketches as well.

*Keywords: Design sketching, design education, conceptual design, sketch style.*

## 1 INTRODUCTION

The support value of sketching in the design process is of enormous importance in the generation, the communication, and the evolution of ideas [3,4,5,6,7]. In the context of the early-stage design process, the sketches are not a goal in itself, but a tool to make better designs [8]. Sketching helps you generate concepts quickly, helps you to explore alternatives rapidly, provides a unique space that can help you think differently and encourages constructive discussions with colleagues and clients [9], self-made sketches support the limited human memory capacity and mental processing for a detailed problem analysis [3, 10, 11, 12,13].

Although extensive research underlines the importance of sketching, only limited research focus on the impact of the quality of sketches. While Rhode [9] pretends that you do not need to be a Leonardo to draw your way to more and better ideas, or you don't have to worry how well you draw, or that the artistic quality of your sketches is not the point because the real goal of sketching is functional, Kudrowitz et al [1] conclude that there is more in a sketch than merely the creative idea: in addition to the creative merit of an idea in itself, the presentation of the idea may also affect the perceived creativity. Based on a design experiment, where four different toaster ideas were each sketched by four people with different backgrounds and levels of sketching proficiency, and where 360 reviewers ranked the toasters for idea creativity, referring to a set of four sketches, Kudrowitz et al [14] explored the relationship between the quality of a product-idea sketch and how others perceive the creativity of the idea portrayed by the sketch. They concluded that high quality sketches were on average 2.3 times more likely to be ranked as the most creative idea when compared to sketch of the same idea drawn with lower quality. Lowest quality sketches were on average 2.4 times more likely to be ranked as the

least creative idea when compared to the high quality sketch of the same idea. A possible explanation for this is that high quality sketches of products need less interpretation to be understood, so the person looking at the sketch can focus on analyzing the creativity of the idea itself, rather than attempting to interpret the sketch in a meaningful way. A good sketch might be easier for the reviewer to imagine what the product would be like to use or exist in their own environment. The quality of sketches in an industrial design context is described by multiple authors [15, 16, 17] as a combination of mastery in line-work execution, correctness of perspective, and appropriateness or realism of proportions. Also orientation of ellipses and more aesthetic sketch criteria like application of shadow, lay-out and the overall appeal are taken into account. Another possible explanation why ideas presented with high quality sketches are perceived more creative, is that we simply prefer and value things that are aesthetically pleasing. The effect of pleasing design has been discussed before by Donald Norman, who argued that attractive things work better [18]. Based on a study from the early nineties Kurosu and Kashimura [19] claimed that beautiful and attractive products work better than ugly. Tractinsky [20], an Israeli scientist was very sceptical about this experiment and assumed that this result was due to the impact of Japanese culture with a strong aesthetic tradition. He repeated the same survey in Israel and concluded that the results were even more pronounced in Israel. The final conclusion was the same: beautiful products work better. Also other studies considered the effect of aesthetics on the perception of existing products (i.e., artefacts, not sketches), some found correlations between ratings of attractiveness and ratings of creativity [21], others found that the category of affect, which included attractiveness, was found to be the strongest indicator of willingness to purchase [22]. If aesthetics affect the evaluation of the final product or prototype, it is reasonable to assume that aesthetics have an effect on the evaluation of the initial ideas, and that ideas sketched with higher quality will be perceived as the more creative ones. This statement was underlined by Chan & Chan [23] and Chan & Zhao [24] who found correlations between sketching ability and artistic creativity suggesting that people who are good at drawing are also creative, and that drawing training in itself makes people more creative [24]. The statement that better sketchers tend to become better product designers, was researched by Corremans et al [2]. The results from this study indicate a significant correlation between the sketching competences of students in their second bachelor year and the assessment of their individual design projects later in the curriculum. Based on these findings, one might conclude that, as they progress in their design education, the better sketching design students are more likely to score higher for industrial design projects, and thus are more likely to become better designers. The statements above underline the importance of sketch quality, and by consequence also the importance of the presence of sketch courses in an industrial design curriculum, and the value of the need to improve the sketch quality of students.

## 2 SKETCHING IN THE CURRICULUM

Basic sketching skills are taught in the first and second semester of the 1<sup>st</sup> bachelor year program. The part sketch initiation of the course Form & Aesthetics focuses mainly on basic technical sketch aspects. The assessment is in line with the quality criteria of sketches in an industrial design context as described in the introduction above.

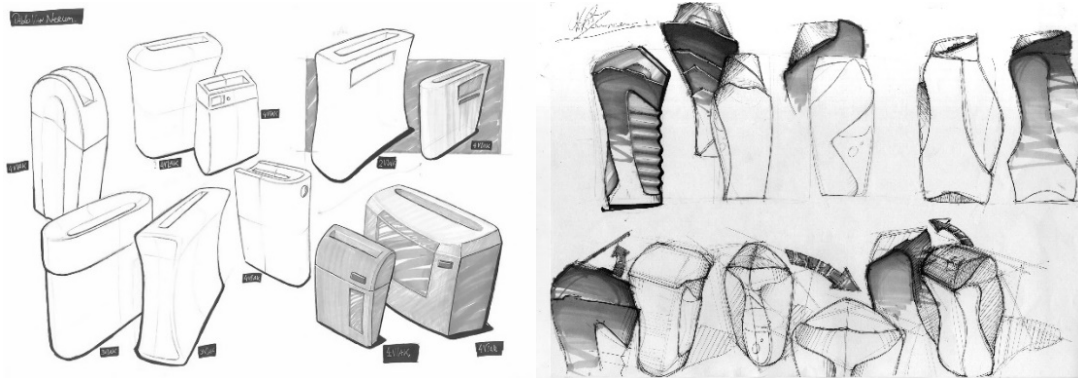


Figure 1. Left: example of the application of the two step manipulation method, right: example of a form ideation study (Pablo Van Nerum and Nick Janssens 1<sup>st</sup> Bachelor year students)

The course Visual and Spatial thinking incorporates drawing exercises and applied sketch design projects like the application of two step manipulation method [26] where students are encouraged to design surface variations that are build up from simple geometrical forms. Another example of a sketch design project is a form ideation study where students have to sketch form alternatives of a certain product based on a given product from a different context. In both these exercises students are forced to draw a lot of product alternatives in a combination of fineliner and marker technique in order to practice their sketching skills.

### 3 IMPROVING SKETCH SKILLS BY IMITATING GOOD SKETCH STYLE EXAMPLES

The role of the sketch teacher has evolved over the years and is underlined before [27] by stating that this role is not limited to being the presenter of knowledge anymore. One role of the sketch teacher still is: to stand in front of or next to the student to actually teach him/her drawing skills: sketch courses are labour intensive courses and the teacher as the expert is still needed for immediate feedback. But another role is emerging: to familiarize students the almost unlimited possibilities and the wide range of good examples, cases and on line tutorials available on the internet, and to stimulate 'blended learning'. 'Blended learning' can be explained as the combination of face to face education and online learning activities to improve the results of education [27].

The enormous off- and online availability of good industrial design sketches can work inspiring for students. If one observes good sketch examples in the industrial and product design context, one can notice that they have a kind of intangible but recognizable common graphic signature or drawing style, often enhanced by the designers' own accents (see figure 2). Analogue (on paper) drawings are mostly a combination of fineliners and colour markers, digital sketches (digital canvas) often show combinations of line- and (air)brush techniques.

The starting point of this experiment is to find out if encouraging the students to imitate good sketch styles examples may or may not have a positive effect on the improvement of their drawing skills.

#### 3.1 Experiment

The experiment was included in the first design project of the first semester of the second bachelor year: a redesign course. One can suppose that students of the second bachelor year have at least one year of sketching experience and have built up a certain basic sketch level. In the redesign course students learn to apply sketches as a means and not a goal, they use sketches as a medium to order thoughts, as a communication tool and as a form explorative technique.

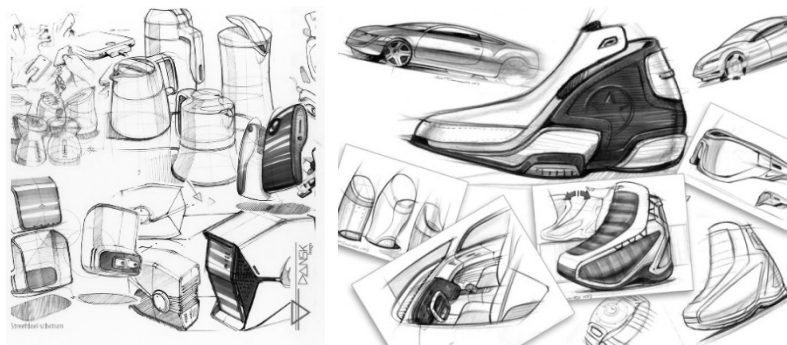


Figure 2. Two professional designers' sketch examples (Left: Spencer Nugent [28], Right: Michael DiTullo)[29]

#### 3.2 Set up of the experiment

80 students participated the design project (56 male/24 female), 75 students finished the project, 69 students participated the survey, a response of 92 %.

Students received the briefing as a group, supported by a PowerPoint presentation. During this briefing, special attention was given to the fact that students had to choose a good sketch example as a goal to work toward regarding their drawings. To familiarize students with eligible sketch styles, references to online good sketch style examples were communicated (websites like <http://www.sketch-a-day.com/>, product design sketch Pinterest boards,...). Books of Koos Eissen & Roselien Steur,

Olofsson & Sjöln and Sjöln & Macdonald were available [22, 23, 24]. To avoid setting too ambitious targets (some students are more gifted in hand drawing than others) students were encouraged to choose an (for them) achievable sketch style goal according to their own sketch competences. The aim was to improve the students' drawing skills by imitating the sketch technique of line setting, application of shadow and/or lay-out of good practices. Over a period of 6 consecutive weeks, students worked on the project. Supervision and feedback were organized weekly. Outcomes of the students' design project were reviewed and discussed by faculty and tutors. Sketch quality was not assessed as such, but project supervisors compared the students' sketch competences between start and finish of the project and agreed that most of the students made progress. After the design project was finished and handed in, a short anonymous survey on paper that questioned the introduction of the sketch experiment in the design project was distributed. Ten statements were listed. For the response of the students to the ten statements a five point Likert scale was used with the possible answers: strongly disagree, disagree, neutral, agree, strongly agree. The Likert scale was used because it is based on a universal method of collecting data, which makes it is easy to understand, quick and easy to run, and respondents are not forced to express an opinion.

#### 4 RESULTS

Figure 3 visualizes the 10 statements and the responses of the students to the survey.

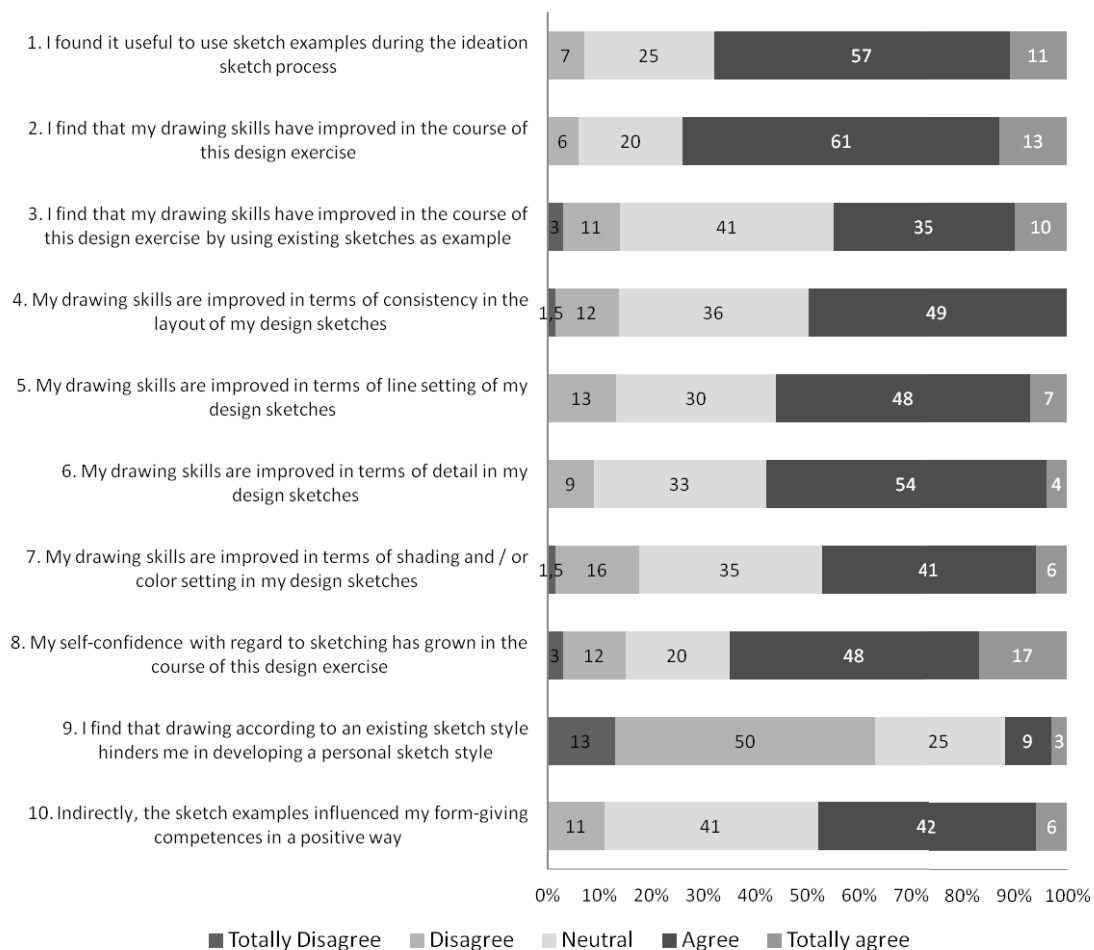


Figure 3. Results of the survey

#### 5 DISCUSSION

The results of the survey indicate that students had a positive attitude towards the experiment, and, in a subjective way, experienced an improvement in their drawing skills. According to faculty, students also felt less reluctant or cautious in using groomed sketches in the ideation phase. Overall, the responses of the students in the survey should be understood as subjective interpretations or reflections

to the given statements. Interesting in the results of the survey is that 74% of the students agreed that their drawing skills have improved in the course of this design project (statement 2). Undoubtedly a part of this improvement is due to practicing drawing skills while designing, but 68% of the students (agreed or totally agreed) found it useful to use good sketch examples during the ideation sketch process, and 45 % found that their drawing skills have improved by using existing sketches as examples. This improvement concerned the consistency in the layout of the design sketches (49% agree), the line setting (55% agree and totally agree), detailing the sketches (58% agree and totally agree) and shading and / or colour setting (47% agree and totally agree). Again, these feelings of sketch quality improvement are subjective, but they are in line with the quality criteria as described by different sketch specialists [15, 16, 17]. 65% of the students declare that their self-confidence with regard to sketching has grown in the course of this design exercise.

At the start of the exercise the students were somewhat reluctant to the fact that they had to imitate an existing sketch style. They were afraid that this would hinder the development of a personal drawing style or signature. This concern eventually proves unfounded: based on the answers in the survey 63% of the students totally disagree or disagree that drawing according to an existing sketch style hinders them in developing a personal sketch style. Only 12% claim that this is the case.

An additional advantage of imitating good sketch examples can be derived from the answers to statement 10: 48% of the students agree or totally agree that good sketch examples influence their form-giving competences in a positive way. Only 11% disagree.

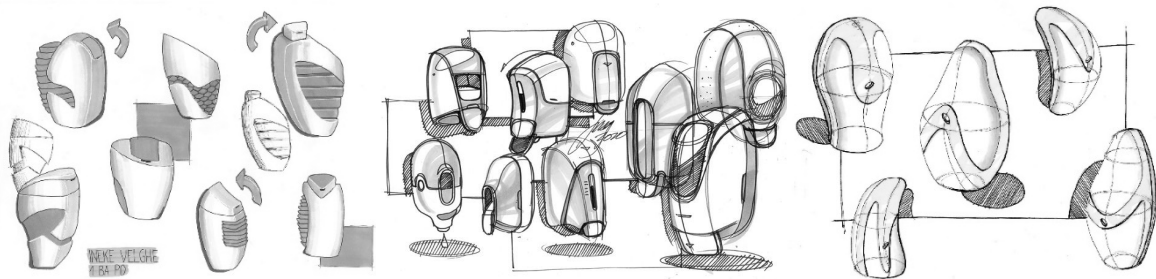


Figure 4. Left: sketch level of student at the end of the first Bachelor year (Ineke Velghe)  
Middle: chosen good sketch example (Spencer Nugent) [28]  
Right: sketch of the same student according to the chosen sketch style (Ineke Velghe)

## 6 LIMITATIONS TO THIS STUDY AND CONCLUSIONS

In an educational context there is always a continuous search for ways to improve student skills.

The aim of this experiment was to find out if the imitation of good sketch styles examples could influence, in a positive way, the sketching skills of industrial design students.

We are aware that the set-up of the experiment was too limited to draw solid conclusions. Mutual sketch competences of students vary a lot (some students are more gifted than others), for that reason students chose different sketch styles (according to their own skills) as a starting point to work towards. In the experiment, the quality of the sketches was not assessed in terms of grades or points (not before, nor after the experiment), and an absolute progress in sketch quality per student was not quantified. So there is no hard or valid evidence that this approach works, but based on the results of the survey, one can conclude that the experiment of imitating good sketch examples to improve sketch competences, seems to be successful: students indicate in a subjective way that they benefit from the presented approach.

Perhaps the most important results are that the students indicate that their sketch self-confidence has grown, that their sketch competences have improved and that using good practice examples also had a positive influence on their form-giving competences.

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