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Fuck up to a grade A

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Abstract

How can design students be encouraged to make experiments and necessary mistakes in order to become better designers and better learners? This paper presents a pedagogical experiment in design education where students have worked with methods inspired by growth mindset and narrative practice as means to develop a bolder attitude towards experimentation with less focus on how to get a high grade and more focus on exploration and learning. The experiment explores what design students think about themselves in situations where they are able to experiment freely and situations where they are unable to experiment freely.

Keywords: design education, experimentation, evaluation, didactics

1 Making no mistakes – a pedagogical challenge

A design process can be described as an iterative interplay between divergent and convergent phases. As the design process develops, the designer shifts between divergent and convergent thinking correspondingly. In the divergent phase the designer conducts experiments such as sketching, prototyping and interventions. The experiments are crucial as a means to question and explore the potentials in the design project. The designer will produce large quantities of sketches and prototypes through experimentation and later in the convergent phases he will evaluate the produced quantities and select which ideas to pursue. The deselected ideas can be defined as *necessary mistakes* of the experimentation; mistakes, because they are deselected; necessary, because they confirm the selection of other ideas. Being in these two different types of phases calls for two different states of mind in the designer. The divergent phase requires an intuitive and open mode, whereas the convergent phase requires an analytic and decisive mode (Lawson 2005).

The experienced designer will effortlessly switch between the two states of mind. However, for a design student the switch between work modes or mindsets can cause difficulties. Observations in classes at Design School Kolding has shown that the intuitive and open mode in the divergent phases seems forced and difficult for many students. Specifically, the ability to experiment freely without any preconceptions about the results appears to be poor

amongst some students. These students focus on the end-result of the design project and on the final examination in an attempt to calculate what it takes to get a grade A. This focus on the result is known in design as a state of being end-driven and it has a constraining effect on the design process. For a design student it also has an influence on his learning outcome as he becomes either a 'surface processing student' with a superficial, reproducing approach or an 'achieving student' with the goal to perform good results rather than seek meaningful insights (Biggs 1987). According to Biggs, the most rewarding learning strategy is that of the 'deep processing student' who asks critical questions and searches for meaning.

This issue forms a pedagogical challenge in design education, where the student encounters processes that require a special ability to experiment freely, to be open to unforeseen outcomes and to tolerate a state of uncertainty. The problem is that the student wants to perform well and is less willing to take risks in his quest for good results. It becomes a paradox; that to perform well as a design student, the student must take risks and make mistakes. Necessary mistakes. Only by making mistakes and going too far in the development of ideas can the student find out how far he actually has to go to create the best design solution to the problem he is working on. From these necessary mistakes, important knowledge can be made by the designer in a design process as well as by the student in a learning process.

This paper presents the pedagogical experiment *Fuck-up to a grade A*. It carries the provocative title in order to stress the importance of making mistakes as a design student; the importance of fucking up and the paradox it generates, when the design student who excels in this obtains the highest grade for doing so. The purpose of the experiment is to study how simple pedagogical tools might support the student in his ability to make experiments and with that also make necessary mistakes. The underlying belief is that making experiments and necessary mistakes will strengthen not only the student's ability to work in the divergent phases of a design process, but also strengthen the student's ability to engage in his own learning process. The project will test concrete tools and five exercises. The development of the process and the tools in the experiment *Fuck-up to a grade A* is based on theoretical ideas from Mindset Theory (Dweck 2006) and Narrative Practice (White 2006).

The project is directed by the research question:

- How can design students be encouraged to make experiments and necessary mistakes in order to become better designers and better learners?

To operationalise the problem formulation, the project works with the following sub-questions:

- What do design students think about themselves when they are able to experiment freely?
- What do they think about themselves when they are unable to experiment freely?
- How can designed handouts support the design student in developing a growth mindset?

2 Learning objectives

The insufficient ability to experiment freely and make necessary mistakes is most apparent in the first year of education at Design School Kolding. The students are at this point struggling with the transformation from being pupils in primary and secondary school with compulsory attendance and obligatory deliveries, to becoming independent and self-managing students and learners (Johannsen et.al 2015). This circumstance might trigger the students' need for correct answers and obstruct the students' courage to make mistakes. Thus, the pedagogical experiment *Fuck-up to a grade A* has been conducted in the four-week course 'Ornament and form', which is a basic design course for first-semester fashion and textile students. The overall purpose of the course is to introduce the students to fundamental design methods within fashion and textile

design. The course is planned as project-based learning where the students learn about the design methods whilst working on an independent design project. The learning outcome of the course is formulated as learning objectives on the basis of the three categories *competences, skills and knowledge* as prescribed by the Danish interpretation of the European 'Qualifications Framework':

Knowledge:

- to understand basic design concepts in fashion and textile design
- to have basic knowledge and understanding of ornament design on a surface
- to have basic knowledge and understanding of three-dimensional design on a body
- to have basic knowledge of the interaction between ornament and form

Skills:

- to be able to experiment with ornament, form and material in order to create a desired expression

Competences:

- to be able to work experimental and exploratory in 2D and 3D
- to be able to document and analyse results of own experiments in a logbook format

The course introduces the students to concrete methods concerning the creation of both geometric and organic ornament and form, whereas the mindset concerning how to actually experiment with these methods have been unstated up till now. The reason for this might be that knowledge about an experimental approach is implicit or tacit knowledge for the teachers who are also practising designers, and the experimental approach is therefore not deliberately taught to the students. This leaves a gap as to how the students will learn about experimental procedures. Thus, this project will focus on the learning objective: *to be able to work experimental and exploratory in 2D and 3D*. As explained in the previous paragraph; to be able to work experimental and exploratory must imply making necessary mistakes in order to learn what not to proceed with.

3 Wanting more mistakes – the pedagogical experiment

Before planning the pedagogical didactic experiment two theories were used to discuss the phenomenon of the students' hesitation in the experimental work in order to get a deeper understanding of the possible underlying motives for this behaviour. According to Mindset Theory people either operate from a fixed mindset or from a growth mindset (Dweck 2006). A person with a fixed mindset has a core belief that his knowledge, skills, competences and even personality is a solid that basically cannot be changed. For this person it becomes a very negative and even destructive experience to make mistakes. These mistakes will either be interpreted as proof of his own incompetence or they will be ignored as something going wrong due to other factors than his performance. To have a fixed mindset is not synonymous with being unintelligent; a person with a fixed mindset can be highly skilled and competitive, that is competitive without making mistakes, since mistakes would be considered a sign of weakness. To have a fixed mindset is to have a static self-image regardless of the level of intelligence.

On the contrary a person with a growth mindset has a dynamic self-image. He believes that his knowledge, skills, competences and even personality can change and grow as a result of effort. For a person with a growth mindset the act of making mistakes is merely a way to develop. He will look at the results; not as an indication to his failure but as an indication to possible learning and development. Where a fixed mindset represents a static self-image and a

belief in talent versus no talent, a growth mindset represents a dynamic self-image and a belief in effort.

By using Mindset Theory to reflect the pedagogical challenge concerning the ability to make free experiments amongst design students, it becomes evident that the students with a fixed mindset will be more likely to develop an end-driven approach to their design process and a reluctance to free experiments and potential mistakes, whereas the students with a growth mindset will freely engage in experimentation. This indicates that to succeed in having all students making experiments and openly show and discuss their mistakes, the design teacher must provide the design students not only with concrete design methods but also methods that support the students in developing a growth mindset.

Dweck (2006) suggests that it is possible to transform a fixed mindset into a growth mindset by using sentences of positive self-talk as method. Some of the core beliefs in Mindset Theory – such as the possibility for change and the use of positive self-talk – is similar to some of the beliefs in Narrative Theory, where narratives are used actively in therapy as a means to change a person's self-image and behaviour (White 2006). According to Narrative Theory a person has no biologically true identity but is defined by the stories he tells about himself and other people tell about him. There is no conflation between the person and his skills or the problems he has experienced. On the contrary a person can alter his self-image and behaviour by identifying his values and the skills and actions supporting these values, and through a new narrative the person can construct a desired identity.

The idea of using a value-based narrative to alter one's behaviour form the base of the teaching tools in the pedagogical experiment *Fuck-up to a grade A*. By asking students' a simple task of idea generation and at the same time giving them the opportunity to create a new narrative about themselves, the hypothesis behind the experiment was that the students would reduce the fear of creating bad results and venture into experimental activities with courage and enthusiasm. Five exercises were developed as a contiguous series moving between narrative, experimental and reflective actions.

4 Execution

The first four exercises took place during the first week of the course. The fifth exercise was an online questionnaire and was sent to the students a month after the conclusion of the course.

4.1 Exercise 1:

The Geographical Map and *The Siblings Row* was conducted on day one and was a narrative action. The purpose of this exercise was firstly to contribute to the establishment of a safe learning space for the twenty-five participating students who had only met previously in a cross disciplinary introduction week, and secondly to introduce the students to the narrative method by having them tell things about themselves to each other. *The Geographical Map* was an exercise where the students imagined a geographical map of the world having only north, south, west and east as fixed directions. The students were asked to place themselves on the floor relative to one another on the imaginary map in the place they were born. The activity made the students talk to each other in order to find the right place to stand and stories were shared from their regions. *The Siblings Row* was later used as a method to form groups of three where the students could discuss the meaning of experimentation. The students were asked to form a long line based on the age of their eldest sibling. Again, the activity made the students talk to each other in order to find the right place to stand.

4.2 Exercise 2:

The Block Card was conducted on day four as a combination of narrative and reflective actions. After an introduction to design experiments and divergent thinking *The Block Card* was introduced. The students were asked to write down negative words they might use about themselves in a design process, words that would obstruct them from engaging freely in experimental activity. It was stressed that the students should not make up words but only note words they actually used about themselves. Afterwards the students discussed in pairs what they had written down and how these words might affect their design process.

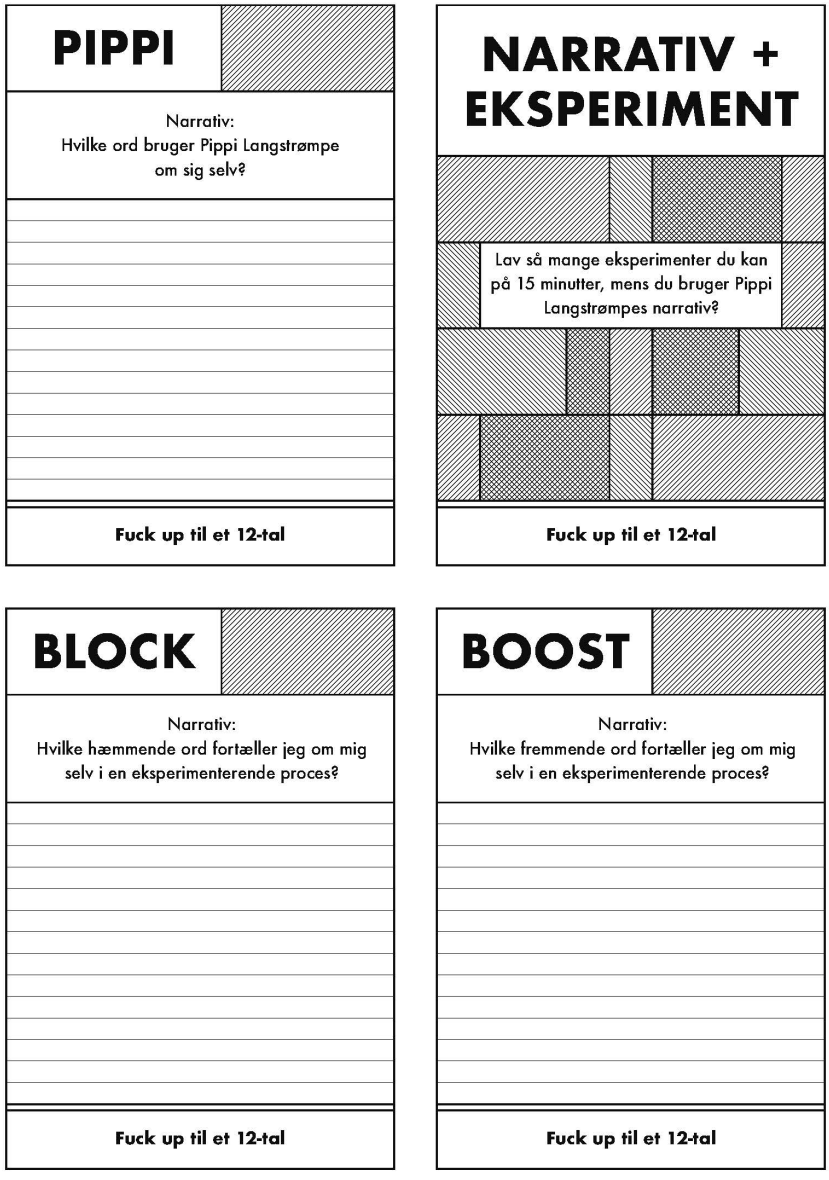

Figure 1. The cards were presented to the student as graphical designed handouts

4.3 Exercise 3:

The Pippi Narrative was a combination of narrative and experimental actions. Conducted in immediate continuation of the block card exercise, the Pippi approach gave the students a possibility to play with other narratives than their habitual and potential negative narratives. Pippi Longstocking is a fictional character by Astrid Lingren (1945). The teacher asked the students to write down words, potentially used by the Pippi about herself if she were to conduct a design experiment. (Pippi doesn't judge herself or others, sleeps with her feet on the pillow, is impertinent towards adults and brings her horse inside the house). Afterwards the students were asked to produce sketches for their project for the duration of exactly fifteen minutes applying *The Pippi Narrative*. The students could only work with the methods already introduced such as sketching on paper with various tools and creating form using paper and manifold. These limitations in time and methods were applied to the exercise as a constraint to make the student work instantly without too many considerations and to make the output comparable to already existing sketches. The exercise was concluded by an open class discussion were the 'Pippi sketches' were compared to previous sketches. The students were asked to reflect on how Pippi's narrative had affected their ability to experiment and sketch and consider how they could find words that would support their experimentation in the future.

4.4 Exercise 4:

The Boost Card was a combination of narrative and reflective actions and the final exercise on day four. The exercise was initiated by an open class discussion were students created a common list of positive words that would support them while making experiments in divergent phases. Subsequently, the students individually filled out a *Boost Card* inspired by Pippi's narrative, the common list of positive words and their own words. The students were told to keep *The Boost Card* in their sketchbooks or on their note board during the project and read it during experimental work. They were also encouraged to keep *The Boost Card* after the project.

4.5 Exercise 5:

The Questionnaire was the final exercise and a reflective action. One month after the conclusion of the project the students were asked to fill in an online questionnaire. The purpose was both to make the students reflect on the exercises and to investigate if the students believed the exercises to have had any effect on their ability to experiment freely. The questionnaire contained the following questions:

- Did you fill out a Block Card and a Boost Card? (Yes-No)
- Do you still have your Block Card and Boost Card? (Yes-No)
- Which of these words from Pippy's narrative or from the common Boost list are included on your Boost card? (multiple choice)
- Which words did you write on the Block Card? (open answer)
- Which words did you write on the Boost Card? (open answer)
- On a scale of 1-10, how confident are you about making a mistake? (scale 1-10)
- On a scale of 1-10, how effective might your Boost Card be in supporting your ability to make mistakes in divergent stages? (scale 1-10)
- What will you do to use your Boost card in future design processes? (open answer)

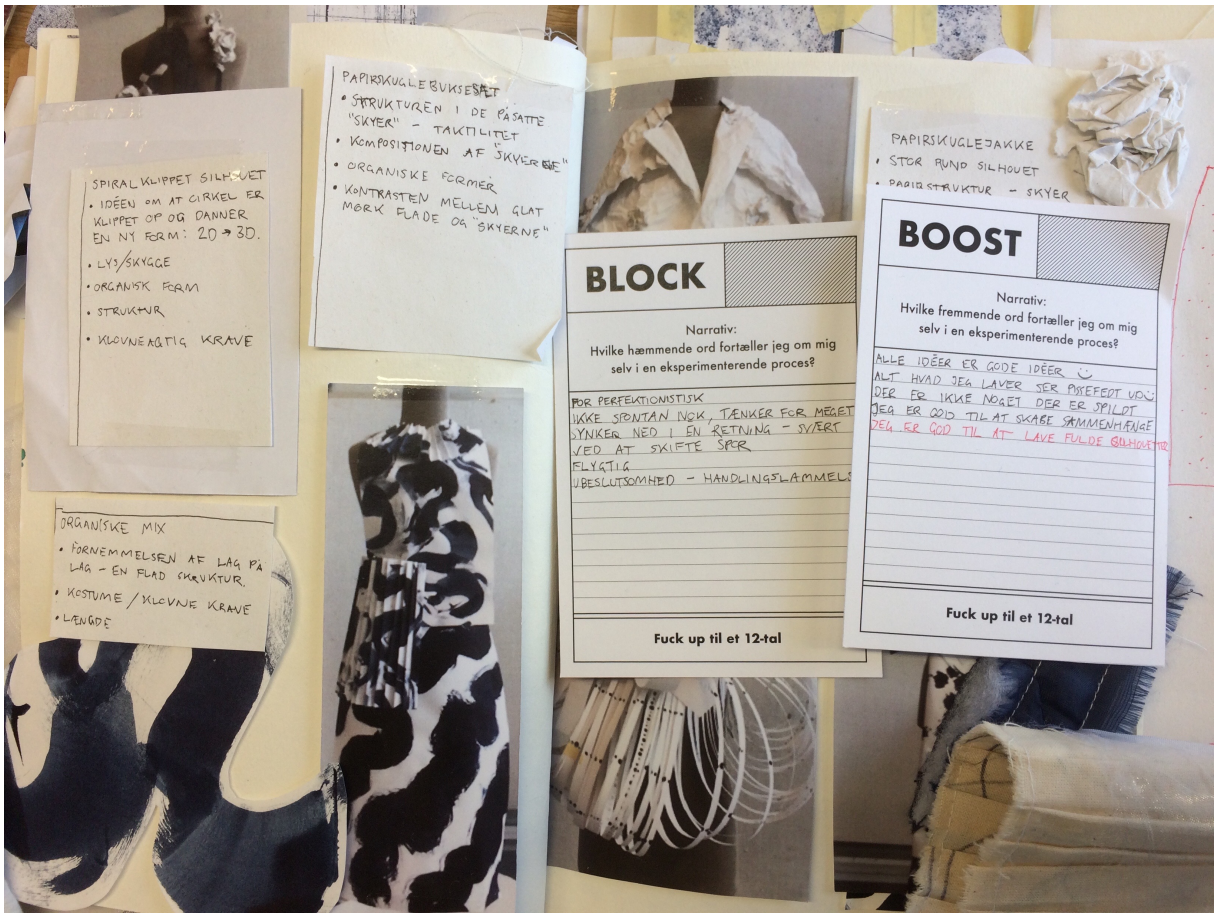

Figure 2. An example of how one student has used the Block and Boost card on her board

5 Results from data collection – methods and evaluation

To evaluate if the didactic experiment *Fuck-up to a grade A* had any effect in encouraging the students to make experiments and necessary mistakes, two types of data collection was used. First, open class discussions were used several times during the experiment to collect qualitative data about the students experience of the experiment. Second, an online questionnaire was used a month after the conclusion of the course to add more quantitative data about the effect of *The Boost Cards* after the experiment. Both the open class discussion and the questionnaire was designed to answer the research questions.

The open class discussion showed that putting on Pippi's narrative had a positive influence on the students' ability to experiment freely. The students expressed a desire to apply words from both Pippi's narrative and the common list of boost words in their regular self-talk in design processes. In general, the students expressed enthusiasm about the exercises, pointing out the dialogues in class and the designed cards as being relevant for their education and ability to experiment freely. The data from the questionnaire shows on the contrary that the students in general think *The Boost Card* to have little effect on their ability to experiment freely. Only eight students out of the twenty-five participating students answered the questionnaire, making it insufficient as quantitative data, but nonetheless the answers are interesting. The data shows a significant use of the following words from Pippy's narrative or from the common Boost list on the students' individual boost cards:

75% used the words: curious, productive
62% used the words: playful, experimental, focused
50% used the words: impassioned, intuitive

In addition to these words, the students have used phrasings such as 'nothing is wasted', 'embrace chaos', 'have fun' and 'be fearless' on their individual *Boost Cards*. In general, the students have chosen words, supporting a growth mindset rather than a fixed mindset, for their *Boost Cards*. The words refer to an experimental approach to the design process rather than to the design product. On the *Block Cards* the students have chosen discouraging words such as 'I am too detail-oriented', 'perfectionist', 'it is ugly' and 'tentative'. Unlike the boost words, the block words relate to the result and as such they represent an end-driven focus in their design process similar to the fixed mindset. These data answer the research questions about what the students think about themselves during experiments in a design process. When they engage freely in experimental work, they seek to apply words that support a growth mindset. When they block in experimental work, they simultaneously use discouraging words from a fixed mindset.

The collected data does not supply the project with enough evidence to show if the exercises has had any influence on the students' ability to make experiments. Based on the answers on the questionnaires it seems as if the exercises are supporting the students who already feel confident with free experimentation but has little effect on the students with a fixed mindset. This conclusion is based on the questions about the students' confidence in making experiments compared to the value they give the *Boost Cards*. To the question: 'On a scale of 1-10, how confident are you about making a mistake?' Only three students out of eight place their answer above 6, indicating they feel confident in making mistakes. To the question: 'On a scale of 1-10, how effective might your *Boost Card* be in supporting your ability to make mistakes in divergent phases?' Only two students out of eight place their answer above 6, indicating they believe the *Boost Card* to be supportive in future design processes. These two students also answered positive to the question concerning their current confidence in making mistakes.

6 Conclusion

As the design student must adopt a growth mindset and embrace mistakes in order to learn, so must the design teacher. This project, *Fuck-up to a grade A,* was set out as an experiment and as such it also held the risk of making mistakes. The project has produced no clear evidence showing that the exercises had any effect on encouraging design students to make experiments and necessary mistakes in order to become better designers and better learners. The open class discussions gave very positive feedback whereas the online questionnaire did not. However, despite no clear evidence that the exercises had the desired effect, the experiment has given rise to many new questions concerning the teaching of design. Three issues have shown particular potential to further investigation.

6.1 First issue

The data from the questionnaire - however poor response rate - showed a coherence between students who already applied a growth mindset in their design work and students who were open for new tools, in this case the *Boost Card*. It would be interesting to investigate and document how these students think while they work, and use these insights to help students with a fixed mindset.

6.2 Second issue

The use of the online questionnaire in connection with evaluation of didactic experiments has shown vast potential. Various types of questions such as multiple-choice questions, scale questions and open-ended questions has been used to inform the qualitative data from the open class discussion and provide details about both the students' choice of supportive words as well as an immediate evaluation of the designed cards. In future teaching projects the online questionnaire can be included repeatedly during the project and made mandatory in order to have a better response rate.

6.3 Third issue

During the progress of the project, it became apparent that relations between *student, teacher* and *content* as described in the didactic triangle (Gundem & Hopmann 2002) would be relevant to investigate further in the context of this project. If the main research question: *How can design students be encouraged to make experiments and necessary mistakes in order to become better designers and better learners?* was to be answered with the *teacher* in the centre of the investigation it would give arise to new questions, such as: How does the teacher tolerate uncertainty? Lack of control? If the *content* was in the centre of the investigation, it would give arise to yet other questions, such as: How do we create alignment between the learning objectives, teaching activities and assessment? How do we assess experiments and mistakes? How do we assess a fuck-up to a grade A and not just a fuck-up?

The overall conclusion is that the project has been fruitful on many levels. It has contributed to more experimentation amongst both students and teachers and will form the foundation for more potential fuck-ups. Or to quote one of the student's *Boost Cards*: 'You can do it, take a break, start again, do the opposite, seek inspiration!'

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