feeding back .txt

Imprint

Throughout the thesis are **references.**
These link to the associated images in the pictorial.

Contents

1.   Abstract

Feeding back aims to improve the understanding of feedback and its implementation inside mentorings or design meetings in the setting of design studies.

Feedback is the basis of how projects tackling complex problems and nonlinear design processes get evaluated and understood, something that is becoming increasingly important in our connected world, full of problems. Adapting the frameworks of that feedback to better fit the needs and workflows of designers working within design processes is vital.

Looking at dynamics such as ownership, power structures and communication, we implement interventions in the form of tools that target those, breaking current habits and building new frameworks.

2. Acknowledgements

And most importantly: Thank you, Corvin, for doing this thesis with me. Thank you for your structure and planning, your relentless way of working and pushing through problems by just starting. To endure my erratic way of thinking, working and presence. For all the good talks we had before and during the process and hopefully will have in the future.

A thank you especially goes to Andreas, the co-author of this thesis and my co-conspirator in this project. Thank you for spending the last four months with me on this through all the ups and downs. For coming up with new ideas and bringing fresh wind into this project every time I felt stuck, bringing me out of my own head and making me remember to take breaks. For always having an open ear and enduring my usage of way too many technical and complicated words.

Let us toast to the successful completion of this project and hope the same for those still to come!

3.   Background Context

This thesis is the final part of our education for our Bachelor's in Interaction Design. The choice of topic and process for this project is entirely up to us. Our project is situated within the Interaction Design department of the Zurich University of Arts (ZHdK) and sits within a timeframe of 4 months. With the goal of writing a thesis, creating a video, prototypes and exhibiting our project at the end of this process within the school. The research for this project will mainly be conducted within the school itself or the greater Zürich area since this is where we have the most access to people working within a design process and the schooling systems. We, being Andreas Waldburger and Corvin Springer. We started our design studies in 2019 and have since then completed multiple projects within and outside of our studies.

Feedback is one of the cornerstones of our studies, the design field overall and how we learned most of our craft over the last years. Still, the way feedback is given does not differ much from other professions. We believe there is a big potential in creating frameworks and structures for feedback, specifically suited to the unique expectations that design puts on feedback and that fit better within the design process.

4. General Introduction

This thesis is the product of a work done on the topic of feeding back. The goal is to create an understanding of what feedback is and which other topics are influencing our dealing with it. A layout and general understanding of these subtopics is accumulated, and the influences on the main topic of feedback is shown. Since the work is situated within the environment of a design school, aspects of education, structures within systems and the influence of those is discussed.

The practical part is situated, tested and developed in mentorings inside the design curriculum of the interaction design department in the ZHdK. Through the field research, assumptions gathered in the desk research are tested. Further tacit knowledge gets developed with experiments, interviews and user testing. In the final stage, we develop a toolkit which helps conduct mentorings or design meetings in a structured, approachable and understandable way.

This thesis is a collection of knowledge, a process documentation, and a tool for reflection and development. It serves to understand our attitude and our decision throughout the process. Further, it serves as a source of collected information for people interested in how mentorings work, what can be influenced and how.

4.1.   **What is feedback?**

Feedback, when taken literally, means that something is being fed back into a system, generally of circular nature. Originally, the term stems from the electronics field and was used to mean that some of the output signal is returned as the input. The first time feedback was used in the context most of us know it as today, meaning "information about the result of a project", was in 1955. *(Douglas, n.d.)* This came about with the development of the field of cybernetics in 1940, where the term got used as a theoretical concept and connected to human science theory for the first time. *(Sanford, 2018b)(W Ross Ashby, 1957)*

Cybernetic is concerned with self-regulating systems and is part of the system theory within complex systems. The foundation of the large field of cybernetics was laid in "Cybernetics: Or Control and Communication in the Animal and the Machine" by Norbert Wiener. The underlying principle in cybernetics is a self-regulating process, where the steps taken are derived from the difference that was measured in the first place. A basic and often used example of a simple cybernetic system is the thermostat, which regulates the room temperature by controlling the heating by turning it on and off according to the measured difference in the actual temperature and the desired temperature. *(Wiener, 2019)*

The term was quickly adopted by a diverse range of people in various fields that use the word with modified meanings. There is audio and video feedback used in engineering, biofeedback, climate change feedback, it is even used as a term in mathematics and software. Terms, such as positive and negative feedback, used throughout the fields can, for example, mean either the widening (positive) or narrowing (negative) of the gap between the reference and the actual parameters or the happy (positive) or unhappy (negative) emotional connotation with the action, that alters that gap.

The switch from feedback being a term to describe technical processes to a word that everyone regularly uses happened with the implementation of cybernetic systems within computer applications and the rise of artificial intelligence systems, which used feedback loops for correcting performance. From there, the idea that the same mechanisms could be applied to human behaviours arose, quickly spreading everywhere from child-rearing to the business world. *(Sanford, 2018a)*

Nowadays, the term feedback is used in a wide range of fields. From computer sciences, education theory, physics, to the everyday work environment and private environments. There are even more meanings for the word than there are users of it.

4.2. **What is feedback for us? — our definition**

For our project as a whole, but also in this thesis, we will be using feedback regularly, so creating an understanding of how we intend for feedback to be understood in those contexts is essential.

We understand feedback as the formulation of the difference between where something is (current progress state) and where it is wished to be (intended goal).

Conversely Ramaprasad, who focuses on feedback in the context of management theory formulated "…information about the gap between the actual level and the reference level of a system parameter" that is used to "alter the gap in some way".

He also maintained that the information by itself is not feedback unless converted into action. *(Ramaprasad, 1983)*

5. **Research Field**

In this section, we will lay out different topics to generate an overview of the research field for this project. We will be opening fields of research to create a frame within which our project resides and to give a basis of knowledge needed, to be able to start on even ground with us into our work.

We tried to think of these research fields as a garden that we are cultivating. With our work as gardeners in this garden, we start by inspecting the ground and soil we are working with. Is it sandy, wet, acidic? How is the biodiversity, the erosion? The soil gives us many clues as to what can easily be cultivated in this spot and what would not do well. The soil cannot easily be changed, it can be enriched by what is planted there, but unless we remove the whole topsoil and completely replace it, it will take time. So what are the underlying topics we are working with, are exposed to, and what are the influences we have to consider, where do they come from?

After that, we take a closer look at the plants already growing on the inspected ground, which ones are flourishing and which ones are having a hard time. How do they look, feel and smell? What can we do to make sure these plants flourish in this garden, so the final work is a well balanced and rich ecosystem where the organisms within are growing well.

5.1.   structures (ground and soil)

5.1.1.   The Design Field and its Process

A process simplified must have an input and an output. In between those ends, there is a transformation that happens; this is the process. Most of the time, it is not easy to define a beginning and ending within a process since it can be broken down and laid out in many different layers and pieces. It depends on the perspective used to look at it. Designers use these perspectives for their work, often changing and adapting to the needs of the project and the affected.

There is a basis that remains constant, and those are the decomposition and recombining of pieces and the nonlinear nature of the processes. In design, processes often consist of loops, where feedback restarts the cycle for the project to run through. Designers are by far not the only ones using these models as structures for their work to follow, Science, Engineering and Architecture also heavily work with them. What differentiates them is how designers apply the systems to themselves to create and design new ways of designing. *(Dubberly, 2004)*

Design Thinking It is an often-used approach to complex problems, famously used by the people at IDEO and praised by the non-design world for creating user-centred solutions. Design thinking consists of fast iterating through roughly produced prototypes. *(Brown, 2008)* Also applied are Design Methods, which seem obvious nowadays, but were a new approach when this term was first coined.

These days, most of the methods used are implemented in a design study. For example, bodystorming, shadowing users, user interviews and brainstorming, to name a few. This approach has the user at its centre, or more generally, it is a human-centred approach.

Feedback plays a major role in this process, which often gets overseen by the shiny post-it notes reflecting through the double diamond. Although we can all agree that feedback is essential, nobody really tries to understand and structure feedback. At least, that is how we encountered it sometimes in our studies.

Non linear Process — or where Design Thinking is needed. When thinking about processes, we often think of one task coming after another, and when we have run through all of them, we are done. However, most problems tackled are usually not that straightforward. Rather they go back and forth in tiny and big loops or other not so structured shapes. One might start with the research and move through to a prototype and then realise that they have to go back to the field they were tackling in the first place or just back to the drawing board on how to tackle the problem.

When working with such an open field of possibilities, one can sometimes get lost in the process. Especially if the problem is not visible or graspable directly in the first steps of a project. It is especially helpful to have another perspective looking at the project and giving a navigational viewpoint in those moments. *(Fernández et al., 2011)* Feedback in the form of mentoring or discussions can, as such, become a valuable navigation and orientation tool in such nonlinear processes.

Complex Problems — or what leads to nonlinear processes. In complex problems, the correlation between input and output is not clearly visible or comprehensible. The variety of interdependencies in a complex system makes it difficult to work in a linear, straightforward manner. The impact generated by a conscious change of parameters alters different, unpredictable points of the system to different amounts.

Most of the problems that we face globally are considered complex problems, such as global warming, poverty, neo-colonialism and many more. These are the problems that we are trying to tackle today and will only get more critical in the future. Additionally, most of the current complex problems are getting more entangled and complicated with time, making finding good ways to tackle these complex problems vital for our future. Gaining conclusions by following backwards to the cause, when changes happen, and predicting future ones, is complex and requires carefully observing, processing and evaluating. *(Bar-Yam, 2002)*

These processes take time to work through, and excellent evaluation tactics to mitigate the severity of side effects that occur anytime there is an intervention into a system. We all have blind spots in our education and life experiences. If it is something we are not directly confronted with in everyday life, then there is a great chance we will not even realise we are not considering it because it simply is not on our radar. *(Dubberly, 2014)*

That also means that complex problems will almost always have nonlinear processes when tackling them. Otherwise, the chances of ending up with a solution that might fix one problem but in the same breath create five new ones is exceptionally high.

<u>Evaluation</u> is placing a rating on the current state of something with a view toward where one expects it to be. Just as with heuristic evaluations *(Nielsen & Molich, 1990)*, where the goal is to test a user interface on its usability with as few resources as possible but as many as necessary, … Meaning that evaluation is as critical or more so to the final product, and therefore the design process, than the initial idea itself.

Sometimes there are projects where the scale against which we measure the value or quality is not and cannot be clearly predefined with measurable parameters. Such is the case with feedback and its impact on a person and their project. Having multiple parameters that cannot be weighed against each other easily means that the only option left is to measure it against established personal experiences, prejudices and knowledge. When this is the case, valuable assessments consist of many evaluations conducted by as diverse as possible groups of people, who ideally represent the whole spectrum of the community, to achieve as close as possible to a neutral and objective evaluation. Even then, there should be an understanding of the goal, direction, or parameters that the project is heading into or should be evaluated under. Otherwise, one can end up with many contradictory, random ideas that are not very helpful to the project.

5.1.2. Education System

Our work is situated deliberately within our design studies. The people we work with and for, students and mentors, are embedded in the structure of universities in Switzerland. This bears as a consequence of the way our society is shaped that our studies require grades to be given to work towards a more across the board translatable performance record. The mentors are the ones given the job of that grading by the school board, so they need a way to evaluate the work completed throughout the design studies.

Further, most of the students went to public school due to the compulsory schooling system in Switzerland. So the conventions and education on how to interact with teachers or generally people in a role of teaching has already been established over the years, before ever arriving in our studies. We need to consider this if we want to understand how feedback and mentorings work and can or cannot be influenced and shaped within this environment.

We will take a closer look at the teacher(mentor)-student relationship throughout the different stages of schooling for this.

Swiss School System — the clearly and structured one way feedback There are many different reasons why the school system is the way it is at the moment. We are aware of the need for the system to change and the difficulties in doing so. We are also not able to fully address the intricacies or combat years of education with the current issues of the school system within our project. We can only take what is at hand and work from there. Still, we benefit from observing and acknowledging this system's impact on our work, more precisely, the learned behaviour in student-mentor (teaching) situations.

Learning in our school system has much to do with performing a given task, where there is a right or wrong. At the start of our schooling, the teachers' emphasis lay more on repetition, the motivation and the effort the students demonstrate, rather than if the outcome is right or wrong.

After those first few years, the shift to stronger emphasise the already present guidance towards the students doing things the "right" way, the specific way they are teaching it, comes along. The students learn how to perform a task through comments by the teacher and increasingly by grades. That leads to a rigid teacher-student relationship, where the goals are set and communicated by the teacher, and the student has to fulfil them.

As a result, the student receiving feedback from the teacher through comments, corrections and grades is expected to accept and adapt to better perform on the testing of those goals. These roles and their function in a system are established over the whole school time to get the students ready for the work field. Most often, this idea of role allocation, where they get a task, and they have to fulfil just that without questioning the task itself, or the person giving them the task, sticks with the students well into their studies.

(Design) Studies After school comes university. Here, there is an emphasis on the student evolving into an independent being, responsible for their own learning.

In the more scientific and humanitarian studies, the tasks to complete are straightforward, the learning objective gets communicated, and the lecture is structured so that the students participating have the possibility of passing the exam. The teacher creates these exams to ensure that students are capable of dealing with what is coming next when they pass them. This system is even more strongly dependent on feedback through grades than in the early years of schooling.

When looking at our design studies, we find quite a different model, where less value is put on grades, aiming for a more intrinsically motivated behaviour and curiosity in the graduates. Most of the mentors teaching here will say that they find grading in this context useless. The studies are built on learning by doing, in a very hands-on approach, teaching what is necessary for the students to figure things out for themselves. As such, preparing the students for a field of work that will expect the same from them. So they see more potential in giving feedback more directly throughout the process of a module and consequently teach students to work with the methods they are taught in an applied manner, rather than just testing at the end if they have retained all the knowledge.

That leads to a shift and blurring of the previously very defined roles in the teacher-student relationship. Where, while the mentor is still the one with the most experience and knowledge, they are trying to teach the students to think and decide for and by themselves independently. That typically means that goals for the project are not yet defined, and the way students approach the project is very open, while the mentor, still being a teacher, gives input and advice. The students coming with public school experience often interpret anything said by the mentor more as an order they have to heed if they want to succeed with the project and get a good grade. This being the primary measure of worth that they grew up with, in a school context.

Points of Feedback in IAD @ZHdK When learning within a design school like ZHdK, particularly the Interaction Design Department, there are a few major points of feedback that we can consider, those involving professors/mentors and those involving fellow students.

The mentors are where one expects the majority of feedback to come from. The significant feedback moments in a project there are the mentorings and the feedback after a presentation.

Both of these can take various forms, but usually, the mentorings are embedded within the process and there to guide through the various steps in a more tailored, personal manner. The feedback after presentations is more of an evaluation overall. Precisely what is expected within these different meetings and what the feedback received consists of, solely depends on the mentors and students themselves.

When compared to the rather formal way feedback with mentors comes across, feedback with fellow students or peer groups, as we define them, is much more informal. When working in groups, this happens on a constant basis. Between groups, they happen primarily in breaks and other social settings. In our experience, this informal feedback also extends to the mentors. When they pass by a desk someone is working at, and something grabs their attention, the mentor will leave a short comment. These moments are an integral part of the feedback culture in our studies.

Power Structures The way our school system is formed and understood by its parties leads to power structures. Since institutions have hierarchy and responsibilities, people in an institution have structural connections. Depending on which roles two people take in a system, their relationship has given power structures. The teacher is in the position of power to decide which student fulfils the requirements defined by the department. The principal has the power to decide if the teacher is capable of helping students to achieve their goals and the goals intended by the institution. If the institution is government-funded, the principal is responsible for ensuring that the graduates are equipped to work in the economic system.

Within our system of feedback in the design process, it is vital to take a closer look at the effects these structures have on situations. The mentors have multiple roles to play in a situation, such as mentoring, functioning as evaluator, grader, teacher, support and co-designer. There are a lot of different perspectives and roles that, at times, clash and make it difficult for all involved to be sure where the parties stand at any moment. This creates difficulty when communicating and building trust within an environment, since the rules of engagement are not clearly marked out due to the participants' changing roles which are not made visible.

5.2.   **working fields (plants)**

5.2.1.   Communication

The following will include a great deal of research from across different departments. Therefore, this is only a short introduction into some parts of communication that are relevant to our project.

The basis of how we function relies on communication, our intelligence evolving from social aptitudes and all meaning arising in language and its communication, still or maybe because of this, it can be quite a challenge. Communication can be viewed as bridging the divide between yourself and the other, and inner thought and outer world.

Everything we do can be viewed as communicating something, and for our purposes, it is helpful to be able to distinguish between things that we are aware of and things that are subconscious. Both on the side of the person communicating and the person on the receiving end. When done, we end up with a matrix of things both parties are aware of, things one of us does not know and things we are both not aware of. The parts we will focus on are where at least one of the parties is aware of the information conveyed. *(Strahm, 2008)*

Verbal, Nonverbal and Paraverbal The methods that the communication comes in can also vary wildly, such as verbal, which we all are primarily aware of when considering communication. Just as important are nonverbal and paraverbal communication, such as body posture, movement, intonations, and inflexion to conveying content. The tone with which something is being said or the facial expressions when listening can completely change the way we receive any of the verbal communication. *(Ridao, 2017)*

So when we talk about communication, unless otherwise specified, we mean all of these in combination with each other.

Miscommunication Even if communication is the building block of our interhuman connection and the reason we were and can pass on knowledge to the next generation, building on what we have already learned to grow civilisation, it is not straightforward. Rather it is steeped in personal experiences, connotations and understanding. Miscommunication is almost as frequent as communication itself, which we have to be aware of when working with and on it. Communication is something we learn. Depending on where and how we grow up, we learn different ways of communicating.

Consider the fact that there are many languages and subordinated dialects, which all have words that can have various different meanings, and those can be vastly different even if they come from a close geographic location. For example, Switzerland, small in terms of area, has four spoken languages. For each of those four languages, various different dialects exist. These vary from canton to canton or even from village to village. This variation is so extreme, that people from close by (three hours of driving) have a hard time understanding each other on a basic level when talking in their dialect. When to this overarching mess of language we also add personal interpretations and connotations, it is surprising we even understand each other at all.

There have been multiple attempts made, to try and categorise and make understanding what exactly is going on when miscommunication happens easier with communication models. Such as the four-sided model, which postulates that with every message come four facets, that can each be misunderstood separately, as the weight and importance of the facets are not communicated with the message. The different facets that this model proposes are:

→ The factual level, which transports the facts and matter of fact data of the message.

→ The self-revealing layer, transporting unintended or intended information about the sender, such as emotions, values or motives.

→ The relationship layer, providing information on how the two people stand to each other socially and if they get along.

→ The appeal level, transporting pleas, desire, advice, instructions, anything the sender wants the receiver to do or think. *(Thun, 2002)*

→ All of this happens continuously, and when we add the different modes of communication, it quickly ends up in a very difficult to sparse mix of possible misunderstandings.

While these mechanisms behind how communication works and misunderstandings are created, are often only viewed as a problem to fix, it is also the same mechanism that makes it possible for new ideas to be generated.

Knowledge Creation through Communication Communication is split into two parts, the first is what is being conveyed by the person communicating and the second is, how what is thrown out into the open is being received. One can visualise this as the person communicating something, setting a package down, wrapped in brown paper, intended to be a present that the person listening then picks up. They have always associated brown packages with moving belongings, so it went from being a present to a simple moving box in the timespan of the package being set down and picked back up.

This moment, where we start to interpret what was being said through our own lenses, is where information is generated. What was being conveyed starts to get inferred with new and different meanings through personal values, life experiences and cognitive differences. Thoughts get then added to this new meaning through the connections viewed. All of this gets put out into the void again, to be picked up by the person the thought originated from, restarting this process once again. This view from different vantage points onto something sitting in the middle and its communication is where ideas and knowledge are created. The minor miscommunications that happen are the source of the new, the innovation here. *(Sousanis, 2015) (Jones, 2010)*

5.2.2. Knowledge

We make a distinction here between explicit and tacit knowledge, these are not always easy to differentiate and often come along intertwined, but oversimplified they can be called 'know what' (explicit) and 'know how' (tacit). For new knowledge creation there needs to be an interaction between these different modes of knowing.The Nonaka-Takeuchi model tries to show this with these different modes of knowledge conversions and combinations.

1. from tacit knowledge to tacit knowledge, or socialisation;
2. from tacit knowledge to explicit knowledge, or externalisation;
3. from explicit knowledge to explicit knowledge, or combination; and
4. from explicit knowledge to tacit knowledge, or internalisation. *(Nonaka & Takeuchi, 1995)*

What can be taught is always explicit knowledge. When we learn by doing that, on the other hand, results in mostly tacit knowledge.

Tacit Knowledge represents something you learn and has skills involved but cannot be written down. Learning the tacit requires feedback, that feedback does not necessarily need to be correct, and therefore tacit knowledge can be wrong. However, it is based on experienced feedback and, as such, radically different from explicit knowledge. *(Turner, 2015)*

The tacit is what we would consider the unspoken and often inarticulable, which is learned through generally less explicit ways than we would relate back to knowledge usually, as Stephen Turner would define it. There is much debate about what tacit knowledge really can be considered as and if it can even exist the way we have a general understanding of it today.

For our purposes, we are going to go with the theory that the tacit exists. Part of the reason it does is that for understanding the explicit, there must be an underlying "sense of things" that is unarticulated — in the background, an idea formulated by our experiences of other things, where we can draw connections and a feeling for this new thing from. That there cannot be a knowing of what (explicit knowledge) if we do not have experiences of the how (tacit knowledge) that we can draw connections from. This theory is illustrated and supported by the difficulty we have at grasping concepts, that are way outside of the range that we could experience, infinity being such an example. This theory proposes that tacit knowledge and, as such, its understanding precedes the processing of explicit knowledge in our brains. So when we experience or learn new things, these exist only in the tacit realm always at first. Sometimes they will move into the explicit, but rarely fully. In a space such as design, which is based mainly on the experience of things in its working, a lot of important knowledge that we base our decisions on stays in that tacit space, not being able to articulate them. Making it difficult to communicate ideas, when the other person has not also experienced the same and possesses that same or similar knowledge.

Embodiment Knowledge comes through and from experience. We believe experience is physical. You know when a screw is tightened because of the feeling in the hand you get from it through the screwdriver. To know this feeling, one needs to have completed the task of tightening a screw several times.

It is hard to separate the body from anything we do since everything we experience is translated through it. Whether it is sound waves travelling through our eardrums, transformed into vibrations and then nerve impulses, that after significant processing then lands in our

cerebral cortex, where the sound is interpreted. Or our thoughts travelling through our neurons as pulses, allowing us to remember, draw connections and generate new ideas. Everything that we seem to be experiencing so easily and unfiltered is a result of the way our body is constructed and such an incredibly vital part when we consider how we move about the world. There is an understanding in our western culture of our body only being the vessel with which our brain, that does all the work on experiencing the world and dictating our reactions, moves about. Contrary to the understanding that our whole body plays a major role in our experience, which science supports. Some of the input never even reaches our brain before we react. A significant part of what experience, while existing within the brain, we never become consciously aware of, which we have learned, is called tacit knowledge. *(Gibbs, 2006)*

That is also why we say in design that knowledge can be stored in physical objects. How to use a door handle is partly stored in its form. By its form, it tells a person how to grab it, and by its attachment point, the rotation is implied. With little knowledge, a door handle can be used. To communicate information to other humans through physical properties, that they themselves might not even be aware of possessing, being processed subconsciously, is a compelling opportunity.

The body and mind are interconnected and just as we can influence the body with our minds, if we are doing well psychologically, often this will manifest in the body as physical symptoms. There have been recent studies indicating that the same can be said about the body and the mind. How your gut flora is doing, influences moods as an example. If we expand and connect this to how we can be influenced by what we are saying continuously, this means that we are also influenced by our bodies, our body language and intonation in the same way. Just like how we can change our own perception by changing our usage of language, we can also change it with our positionings and tonality. So, when considering communication and our bodies, these have an equally important role to play, but we are way less likely to be aware of them. *(Jacobs, 2013)*

To be aware of all of these circumstances is extremely important for our work. We see immense potential in using the aspects of this embodied language for feedback in the environment of mentorings. Because we see that there is so much happening, often not visible in the first place.

5.2.3. Trust

Trust is a vital component of learning and working in groups. Any aspect where we interact and are expected to take something from other people will inevitably require some form of trust. If trust is missing, learning becomes almost impossible. *(Landrum et al., 2015)*

In this context of mentors and students, the idea of trust can be broken down into two aspects. One is the more general trust in the mentor's abilities and faculties, which is often also referred to as confidence. It concerns the professional capabilities and just means that you are trusting this person to teach you relevant and correct information. The second kind of trust comes from a more personal place, it is social trust. It is the kind where embarrassment, humiliation, ridicule and feeling of not being listened to come from. That kind of trust is interpersonal and is contingent on personality and communication in everyday settings. *(Boud & Molloy, 2013)*

Further, we take into consideration that trust can also be mediated by a clearly defined situation or space. Equipped with rules of communication, physical movement and engagement, a room or a situation can create a layer, like a playing field, on which can be communicated and acted in a more balanced way. This trust in the situation can help if the trust in the other people involved is missing. *(Vanhala et al., 2011)* Still, the trust in the abilities and intentions of the other person has more impact than the trust in the situation. It is no equivalent substitute for personal trust.

<u>Psychological Safety</u> What marks the difference between the well-established idea of trust and this newer emerging term of psychological safety, is the group dynamic element. Psychological safety signifies a group's common perception/experience of the consequences of taking interpersonal risks and as such, defines the norm of how the group interacts with each other. By seeing the way we work, mostly in groups, and most of our interactions with our mentors take place within even bigger groups, the interpersonal and psychological safety become topics of importance. Psychological safety is one of the best-studied enabling factors in team learning and group dynamics. Increasing the amount the individuals learn from their mistakes *(Edmondson, 1996)*, they are also more likely to express new or different ideas *(Edmondson, 1999)*, ask when they need help and just in general engage more actively with the topics at hand *(Kark & Carmeli, 2009)*. In general, one can say that the output of a team that feels psychologically safe is well balanced with the skills of all members utilised, they enjoy the work they are doing, are motivated and have higher innovation in their solution finding. *(Edmondson, 2018)*

The ways that this safety is created includes having a clear communication of roles within the team, framing the work as a learning problem (you cannot fail at it), showing fallibility and vulnerability and embracing silence as a tool. *(Pacheco et al., 2015)*

5.3.   Feedback in the context of all that

5.3.1.   Leverage Points

Some of the points that we could tackle are:

→   The setting and space where feedback is being held, there is no designated space at the moment where feedback is conducted, meaning that there is possibility for the space to play a more significant role in influencing feedback.

→   There are also certain expectations of behaviour within that space and time, which also help keep a clear rigidness and power dynamic in place, which could be broken up through body positioning and order of events. Feedback is also very much anchored in a verbal exchange, which neglects the many other ways in which we are capable of and do communicate.

→   Placing more emphasis on that could help us understand better where people are coming from. (Dimitrakopoulou, 2021) One big point of leverage is the way design is a discipline of artefacts, experiences and interaction, which all contain a fair amount of tacit knowledge, which we can not effectively communicate with the verbal language at hand.

All of those would have the overarching goals of changing the rules of how feedback is being used and held, all with the intent for the feedback to be easier to understand, accept and process.

Mentoring When thinking about where we could apply and test our prototypes, we see the best setting would be inside mentorings. That is where there is the most potential for our work to have an impact, get tested regularly and have the possibility of different parties being involved in the meeting. Since these mentorings are already established in the planning of a course, we will have many opportunities to test our interventions and tools.

Frameworks As we understand it, frameworks are rules implied or communicated, consciously or unconsciously, which give a shared perspective for the participants to look at the situation.

If we make a presentation, the framework is that one person is talking and is not to be interrupted, until he asks to be. Further, it is implied that all people listening are paying attention to the one presenting, at least pretending to do so. The greater the crowd of listeners, the less the individual listener has to contribute to the crowd's attention.

This framework can be manipulated through physical interventions. For example by turning around the chairs of the audience. Also, the frameworks can be changed by communicating the intended goal. However, often the learned framework of a situation acts stronger. Particularly if the desired change of the framework is communicated by an often heard phrase. For example, the "Questions are warmly welcome, all the time, just interrupt".

5.4.   **Research Question — Hypothesis**

We hypothesise that there is room for improvement in mentoring and design meetings. We are able to make use of this room by conducting our work under the following questions:

How might we create and use methods, frameworks and objects that support and facilitate communication and understanding between participants in moments of feedback within mentorings in the design study setting?

Finding what and where the points of interaction and communication in mentoring are, and how we can intervene and design for the participants and their understanding of each other. Then testing it and developing it further with the participants and their feedback on our interventions.

5.5.   **Methodologies**

Methodologies can be viewed as tools, with which we tackle the bigger picture of the project and dissect how we have to do what, for our ideas and interventions to work.

Having chosen a theme that heavily involves and depends on people on a personal and professional level, we want to use many methods where we can reflect that in our research and experimentation. Our approach to this well-researched topic of feedback is experimental and hands-on. We will try and reflect this in how we conduct these methods in the beginning stages. When it comes to proving feasibility, we will employ user testing as much as possible.

5.5.1.   Personal Experience

Some of these experiments and interventions generate very tacit knowledge and information, that we are better off just experiencing ourselves, rather than trying to extrapolate from recounts. Added onto this, is the facility for us to feel the directions that we want to go into and what had an influence on this effect, if we do not have to try and articulate it into words as much.

5.5.2.   Interviews & Conversations

Naturally, we cannot extrapolate how someone is feeling toward a situation by just watching them interact. Rather having personal stories and perceptions can be extremely helpful, especially in relation to observations. Unfortunately, we are not as good at reading people as we assume and knowing the up close perspective of what exactly made an impression and what did not, is extremely vital for us.

5.5.3. Prototypes & Experiments

Externalising plays a big role in grasping certain themes, especially the nuances and unexpected turns, that come from a complex problem, which our topic definitely is. So we start prototyping and experimenting on small scales as soon as possible to be able to get a better handle on the intricacies and complexities of our project.

5.5.4. User Testing

Our topic and approach being so personal, what we create is bound to be steeped in our bias and blind spots, so testing is critical. We want to be sure that what we create is actually feasible and works with a broader audience of people. We will do user testing at every step of the way and, as such, be able to check the validity of any assumptions that we make.

5.6.   **Motivation and Intended Contribution**

5.6.1.   Motivation

Our motivation comes from the gutted feeling we experienced after several mentorings on our design projects. It was hard to distinguish for us where it came from. Sometimes, we felt misunderstood, and other times, personally attacked. On the other side, we also experienced elevating mentorings, which gave us motivation and ideas to proceed with our process. This broad, apparently randomly switching range of what kind of impact a mentoring has left us asking if there is something we can create to help limit this range and make the outcome of mentorings more understandable.

This will demand an understanding of what feedback is, what it consists of and how these different components of feedback affect the outcome. This knowledge is not something we have to understand on our own. There is a wide field of research conducted on the topic of feedback. A big branch is the educational theory, which investigates how to educate people. It is mainly in a teacher-student relationship where we see overlapping topics. Nevertheless, communication theory and group coaching are areas where research is conducted on why and when to give feedback as well. Which is logical since it is difficult to conduct quantitative research on a non-quantitative topic in communication.

5.6.2.   Contribution

We see our contribution in experimenting and developing framework methods and prototyping on the topic of conducting feedback in a mentoring type situation. We see ourselves in a position to build on the gathered knowledge of a method or object, which can be used and talked about.

Through a tangible process which heavily involves responses and confirmation of other people, testing our ideas and products, we want to create a space and ubiquitous framework for feedback. This could be realised in an object, a method, a whole room or instructions on how to use a space and communication. We strongly believe in the abilities of verbal communication, but see the potential of misunderstandings, if used as the only tool. Therefore, we want to put an emphasis on the embodiment of feedback.

6. **Concept**

We accumulated a broad knowledge of the topic of feedback. We compiled a theoretical understanding of what feedback is and experienced and observed how feedback gets transmitted, understood and misunderstood. Further, we gathered an overview and an understanding for the most relevant underlying and determining topics of feedback in our context, such as trust, communication and the educational system around us.

We start with a small, accessible scale for us in the Department of Interaction Design. By doing that, we give ourselves the chance to test our assumptions swiftly and frequently. We do not believe our work will be the one and only solution, never to have misunderstood feedback again. Still, it can help in understanding feedback and mentoring.

With that knowledge in mind, we experiment and prototype solutions to problems we have and will discover along the process. By reiterating minor improvements over and over we try to achieve a product, framework, structure or method, which can be used to conduct feedback.

6.1. **Concept and Angle**

With our research, we found that there is potential for improving on giving and receiving feedback. We also see that feedback inside design is a kind of multi-tool-solution, used for everything and by everyone, but in itself often not worked on. For a tool to work, it needs regular maintenance, and the user needs an understanding of how the instrument works. These are both things we see missing in our studies and experience.

Research on the understanding of feedback has already been conducted numerous times. Many communication experts contributed to that understanding of feedback. Including the acknowledgement that feedback itself is a word which has undergone semantic bleaching. We wan to build upon these findings.

With an experimental iterative approach, we want to build and test as many prototypes as possible. We want to start small and develop from there. We believe in failing fast and failing often. We have to make ourselves vulnerable by testing prototypes we are not fully happy with and be aware of the fact that there will be misunderstandings. We have to learn from those experiences and incorporate that into the next steps we take. By starting in our school environment, we hope to have a good user group that can give valuable feedback on our prototypes, to develop them further.

Due to our approach being influenced by embodiment, spatial design, experience design and systematic interventions, we hope to take the ideas and rules we have learned within our desk research and embed them in our environment, to create ubiquitous changes to how feedback is conducted. We have chosen this more visceral approach, because, while we know and are aware of a lot of the rules and techniques for communication and feedback, they are not applied very often in the everyday. Instead, they stay in a sort of academic space of knowledge on how we should be doing things. We want to try and find an approach to almost circumvent this academic space and preferably embed our tools and frameworks as practical knowledge immediately, as such creating a more sustainable change, that does not take as much intrinsic motivation to achieve.

6.2.   Bias — We are students

We are challenged by the underlying problem of working towards a tool that we could use in our process in the first place. We are embedded in a school situation and are not able to set ourselves completely free of power structures. Our mentors testing as well as evaluating our work, they know us and are familiar with our strengths and weaknesses. All of this is embedded in our relationship and affects how we exchange and interact. We do not see a fundamental problem in that. At least not one we can and want to change. However, it does affect our work. Further, we were mostly on the receiving end of feedback and are influenced by this one-sided experience. Through our work, we cultivate more diverse perspectives and viewpoints onto the topic and want to ensure that this is reflected in our decision making.

6.3. **Related Projects**

The reason behind naming related projects, is to situate our work in the already existing. Avoiding doing work already done, rather building on the things already done and tested. Further narrowing down what we want to do similarly and what we want to do differently.

6.3.1. Disney Creativity Rooms

What is it? The Disney creativity rooms are room settings used by Disney when working on their movies. It is based on the general way Disney approaches projects. This happens in three phases. These three phases often come as three personalities. The Dreamer, the Realist and the Critic. These three are all irreplaceable aspects needed for creating something. The Dreamer has ideas, The Realist tries to turn them into reality and the Critic tests them. These phases or characters can be played by the same persons or different ones. To push this concept further, Disney also rearranges the rooms according to what the desired outcome of the meeting is. If they are in the dreamer stage of a project, they are seated differently than if they are criticising a project. Because the indivisual perspective on a project matters, the relationship of the project owners among each other and to the project is made visible.

A method similar and often mentioned are the six thinking hats from Edward de Bono, where people in a group discussion take on a role, according to the colour of their hat. *(de Bono, 1990)* This method aims to generate a more open discussion, because a layer of acting is given to the participants to rely on.

Why is it important for us? The Disney Creativity Rooms prove that the setting and the physical attributes of a room are important when deciding what outcome from the feedback is wanted. By defining the standpoint of each participant beforehand, the communication is also guided into a specific direction, which is needed for whichever stage the project is in, respectively.

6.3.2.   Designing Generative Dialogue Spaces

What is it? The project aims to create more understanding of the lived experiences of participants within focus groups, a core methodology of qualitative research.

"Informed by phenomenology, the philosophy of dialogue, and design thinking, and with a strong visual focus, the framework aims at surfacing participants' lived experiences as a way of understanding their perceptions, thoughts, and perspectives, especially within the context of controversial or polarising topics of concern." *(Dimitrakopoulou, 2021)*

The resulting Generative Dialogue framework is based on knowledge, storytelling, design and inquiry and is intended to allow participants to jointly develop shared insights and meaning. This framework has been applied in a user study to explore people's perceptions of the covid-19 vaccination.

"The motivation for this work is grounded in the need to draw forth people's lived experiences as a means of surfacing their perceptions and mental models while making meaning of these." *(Dimitrakopoulou, 2021)*

They use techniques to create visual memories of the dialogue to support and create clarity.

Why is it important for us? They are proposing a method of generating a way to take into consideration the lived experiences and, as such, the lenses of the different participants during a dialogue to create understanding and come to develop shared meanings. This can significantly reduce miscommunication and help the different participants to process and integrate the comments of others, through their understanding of the lens from which these comments are coming. That, makes visible and graspable the normally invisible forces on communication to make it easier to process, which is also what we would like to try and create within feedback.

6.3.3. T-Kit

What is it? The T-Kit is a series of interactive objects, concerning general office problems. Noise, loss of time and communication. By breaking the problems down to a scale, where a simple interaction can help solve the problems.

For example, the T-1 is a tool where three people are needed to signal through an interaction with the object that they feel the situation around them is too loud. Then the object itself makes the other people in the room attentive to the fact that some people feel it is too loud to work.

Why is it important for us? We are inspired by how the general topic of office problems is broken down to a size where it becomes possible to work with the problems. Further, the connection of the three objects has brought them together again for a cohesive image of how one could transform office spaces for the better. Also, the haptic realisation of the project is something we believe is important for our work since there is no right or wrong, instead there is more experience and knowledge that needs to be transmitted.

6.3.4. IDEO Design Kit Methods

What is it? The Design Kit Method is a card set of different tasks, inspired by design thinking and the human-centred design process. The tasks are common practice in the working field. They serve as a source of structure and inspiration, when starting or being stuck in a project. These cards all contain methods that are tested and established. Naming them and structuring them through instructions gives a point to start and steps to go through, helping to get the ball rolling.

Why is it important for us? Most important is that the content of the Design Kit is not a new invention but rather common knowledge within the whole field of design and is packed into a tangible product, which can be used by the design field or people getting in touch with it. It can serve as a communication tool and since it is a product everyone could get their hands on, it has a different impact than someone just verbally proposing a method

7.   Field Research

In our field research, we aim to get in contact with our topic. Through observation, exchange and multiple other perspectives, we try to get a practical understanding of feedback and its application. Validating, disproving or expanding on what we learned in our desk research, getting a feeling for the different fields, viewpoints and experiences is our goal.

7.1.   Personal Experience

One primary motivation to do our work in the direction of feedback is personal experiences. Since this is the starting point of our project, it is also a filter in our work. Everything we read, learn and discover we align with our personal experience. It is a bias we cannot prevent that we will try our best to mitigate it as much as possible, by validating our thesis with other participants in user testings.

This personal perspective also has a positive side, which we want to lean into and also benefit from as much as possible. Communication and human interaction is unfortunately not very clear cut or easy to research, rather a lot of it is based on feelings and impressions that are hard to communicate. Sometimes, when expecting something to have a specific impact, it does something completely different and to be able to pinpoint which are the factors that influence these different changes and if these are worth exploring more, is too tall a task to ask our participants to answer. So for us to be able to experience the interventions we create ourselves, gives us the possibility of leaning into those hunches and unexplained phenomenons.

We also have to keep in mind that our personal experiences are a one-sided perspective on feedback, as we only know the student side of mentoring, for example. We try exploring and getting a feeling for being on the mentor's side of the equation, but since we mostly mentor our peers, it will not be quite the same. Nevertheless, having those personal experiences will allow us, in combination with interviews and conversations, to get a better impression and make it possible to better relate to that perspective. Which we deem very important.

The very vague and fuzzy way that interventions within such a multilayered interpersonal medium can be evaluated, means that our own experiences will continue to play a big part in shaping the direction of our work. Taking what we ourselves experience, notice and feel in experiments and testing situations and combining this with quantitative evaluations, builds the groundwork for the way we tackle this project.

7.1.1.   Blog — Observations and Reflections

One of the tools we used extensively for ourselves throughout this project, was writing a blog. It gave us the framework to describe and reflect on our experiences and observations throughout this project and the different experiments we made. Making room to take the time to ponder and draw connections.

7.2.   Fly on the Wall

We decided to start our field research by making some observations about how mentorings are conducted today, to gain some insights into the topic and validate feedback as a theme worth investigating, not only from our own experiences, but also from a more objective point of view. Wanting to get as unedited as possible of an impression, we decided to take a fly on the wall approach. We had the chance to sit in on a mentoring in the third semester Interactive Visualisations module. The class was divided into 5 groups of 3-4 students, who we all observed. Unfortunately the mentor was aware of what was happening, since we had to get his permission to sit in. The students on the other hand were not informed and we tried to make it seem like we were working on something else entirely. One of us positioned themselves to be able to look at the body language and the other had their back turned to create less of a feeling of observation and was analysing the verbal language used. We picked some points to pay particular attention to: Which were the comments from the feedback giver and are they actionable, facts or opinions? We also paid attention to body language and what the feedback recipients came into the mentoring with. A point of attention was also the communication and the repetition and circles that were talked, as well as the involvement of all the participants.

Some of the things we noticed were, that there did not seem to be any clear start and ending to the mentoring. There also seemed to be some confusion on what the students should bring into the mentoring. The feedback seemed to be jumping from one level to another, from the overall concept to the following comment being something on a highly detailed level. The students, who were more trying to defend and explain their decisions that they had made, tended to get more frequently into quite heated discussions with the mentor, where the mentor did not let them finish talking and interrupted them. One of the things that we had never noticed that strongly, when we were part of a mentoring as students, was, that the table was used as a divider between the mentor and students. Even without chairs and the ability to move freely, there was a lot of body language that we would interpret as being disinterested and not listening on the students' side, especially in bigger groups.

In general, it was fascinating to look at something so familiar from a completely different perspective. We also walked away from these observations more sure that this topic was worth tackling and would give us the possibilities for interventions and changes to be tested.

7.3. Interviews

7.3.1. Video

For our concept video, we decided that we wanted to get some insights into the opinions of some of our peers onto tape to validate or get different insights from our own experiences as students with feedback. We decided to ask our peers in pairs to join us for the interviews. We decided to do it this way, because we did not want people to feel cornered and overwhelmed with two people and a camera sitting opposite them, when answering questions. This, a last minute decision, turned out to be a major learning point for us on how to conduct interviews, since it worked so well to have two people answering questions with each other, that could elaborate, contradict and open new avenues of discussion, which otherwise would have been very hard for us to manage as rooky interviewers.

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We interviewed students from the three different years and managed to gain a clearer idea of some points to start out on.

Some of the things that came up were time and the rigid structures in which mentorings are scheduled, which might be utterly contrary to how a project is progressing and not be useful in the slightest, when it is planned. Alternatively, that the mentors are at a completely different stage and it can feel like having to prove why the decisions that you made were correct for the project, feeling like you are being pulled back into discussions, that you had already talked through and moved forward from with a decision. Also getting feedback on something that you really do not need or want any feedback on at the moment and general miscommunication was mentioned. A recurring theme was the extreme individual nature that mentorings and feedback are conducted with and the difficulty that this brought with it.

7.3.2. One on One interviews

Mentor 1 The first interview we conducted to get insight into the mentors point of view, was with a mentor who had taught and mentored us before. They are also working within the industry as an interaction designer, this double perspective was what really interested us. We learned, that they conduct feedback the same as a mentor and a coworker, which is to say that they like to work together on the next steps and direction, they would consider their approach as co-designing. The inspiration for their manner of mentoring they took from their own mentor, who took a strong CEO, worker approach and experience that they had made over the years with combative coworkers. They told us, that they try to make the students within a mentoring feel like their ideas are actually the students own ideas, because they have had the experience that ownership and feeling that the project is yours, is very important in our field. They also stated, that they pay particular attention that their influence on the project stays an inspiration and does not fall into manipulation. In general, they think that next to the feeling of ownership, important for feedback to reach the other person, is professional respect toward the person giving feedback, as well as an understanding that design is a collaborative exercise. And just because an idea was not originally yours, does not make it any less your project, this last point is what he feels students struggle with the most.

When we asked about their experience of the double role that they play as a mentor, as a guide and person grading at the end, they did not answer the question, rather they answered tangentially every time we tried to get to the point, like explaining how they grade the projects without letting sympathy get in the way of objectivity. They also mentioned continually doing further courses on how to communicate, feedback and mentor in more effective ways regularly. From this, we concluded that they were not as aware of the power structures inside a mentoring as we were through our work.

Mentor 2 This next interviewee was chosen, since this person also works within the industry, as well as teaching as a mentor at our school but they also are an alumni from our study. So they also have the perspective of looking back on our studies from the position they have currently. They mentioned, that the way they like to mentor is a good conversation, a back and forth if you will, to generate new ideas, where everyone walks away having learned something new in the end. They told us that they would not consider what they do as co-designing. For them, that is something different that would necessitate them having a say in what happens in regard to the project. This would not allow them that distance, that coming from outside towards a project allows, which they feel is necessary for mentorings. Within their work environment, they felt they did not do anything different in their feedback, rather it was sometimes challenging in general, because the structure of their business meant that they always had to ask someone else, if they wanted feedback and normally they did not have a lot of time. So while feedback is very similar when conducted, they did feel it did not happen very often, due to those hurdles. They mentioned how important having criterias are for them in their work life as well as the mentor's perspective. They elaborated, that despite even having criteria on how something is looked at and evaluated, it comes from a very personal space that is created through one's values, and it is still important to have that base level of understanding. They also mentioned, that their experience within their own schooling was that all mentorings and feedback were very much hinging on the other people within the mentoring and were very varied. One of the difficulties they mentioned having as a mentor, was when they noticed what they called "Feedback Resistenz" which they explained, meant when you could feel the person across from you not listening to or completely disregarding your input. Basically, when you could not reach the person across from you at all, which they mentioned is mostly a communication issue for them. They added that they did not want students to just blindly follow their ideas and try and fulfil them, rather they would really like for them to be viewed as inspiration and that was completely fine if it went in the opposite direction as long as it provoked thought. They also mentioned how important it was to them, for the student to make their project very much their own.

In general, they told us they do not feel any friction from the double role they play, because they see themselves as a companion and point of contact and feel that marks are rather out of place in a design school. They also mentioned doing further courses to become a better mentor and also working on these things within their company.

Communications Coach The next person we interviewed is someone, who works freelance as an expert for communication, strategy and tactic and is also employed to teach certain courses by the design department. We decided to interview this communication coach for multiple reasons: One, communication being one of the foundations of feedback, we thought it interesting to gain their insights. Two we were fascinated by their ability to create an environment of trust in a very short time in their module. Trust being one of the major building blocks to make a good feedback possible and something we felt was sometimes missing, even after months within our studies. This interview was held in a more informal setting, resembling more a conversation, resulting in an interesting exchange on perspective and personal bias concerning communication and mentorings within our school. When asked about the way they generate this particular bubble of trust within their courses, they mentioned having had to reflect a lot about this over the years and still not being completely certain. Their best theory involved the rules that they generate with all the participants at the beginning of every course and enforce throughout, by paying attention and pointing out, if someone crosses them. Those rules contain in part ways of communicating and also behaviour towards each other and the course at hand. They also emphasised how trust is a two-way street, that necessitates vulnerability to form, which they made clear is not something that comes easy, when like our mentors, you are in a position of power. People in those situations tend to rather double down and emphasise their position of power, which is the opposite of what is needed for trust to be generated in mentoring situation.

What became apparent to us is that they themselves use their communication rules continuously, listening intently and letting people finish their thoughts, taking their time to really think about their words and correcting themselves, if they feel it came out the wrong way, making people aware that they are aware of them while talking, if someone wanted to interject something for example.

7.4.   Conversations

Often used in our process intentionally and unintentionally. An intended short exchange with the user of our intervention, an informal chat with our peer or with the mentor on how the testing of our framework felt for him. But also the informal and mostly unintentional conversations in breaks, while waiting for coffee or playing table tennis with our peers and mentors, helped us understand our work, the several different understandings and feelings of the topic and how good some of our ideas worked or did not.

One main point we took from most of the conversation, is the variety of impacts feedback has, even on the same person. We learned again, that there will not be a one for all solution and we can appreciate this. What we can still recount now here, are the things said, that had an impact on us in the moment it was said, things that stayed, because they influenced our perception of our project.

7.4.1.   Students

Some of the conversations we had with students, reinforced our perception of mentoring and feedback in the Interaction Design and that it is a relevant and recurring topic across the different semesters. Many are dissatisfied with usage and the impact some mentorings had on their work.

We noticed especially how focused the complaints and also compliments were on specific people and how difficult some found it to get something they found useful from some mentorings, feeling like they were taking on the role of mediators in those instances. We often heard how students would prepare for those mentorings with mentors they had had bad experiences with, but not the others. Confusion with who was supposed to lead the meeting, greeting people and starting the conversation, was mentioned multiple times. The students being confused by the awkward silence and almost wanting to provoke the mentors to having to start by refusing to do it themselves. That level of frustration with the situation and feeling like you do not have the ability to change it, ended up in wanting to provoke a change or giving up on caring entirely, was a recurring theme in a lot of situations concerning the structure of the study and the role of the mentors within that.

That feeling of being stuck and unhappy with the way things are, progressing but not feeling like you had the possibility to change it more than a few nudges here and there, was very much a mirror of some of our own experiences and a bigger source of the frustration, than simply having a bad mentoring.

Others emphasised, that there are already good things happening and working on feedback. Helping students in their work process, in evaluating and understanding the impact of their decisions and projects. Motivating them to push further and rethink already made decisions for the good. Almost every student we spoke to had that one mentoring, that they still remembered, that created the gold standard for them as to what a really great mentoring can accomplish and feel like. Creating that uplifting, inspiring feeling that you know exactly how to proceed and are very inspired by it, understanding where you currently are with your project and proceeding from there. Knowing just how much of an influence a mentoring can have on a project, we believe, is part of the frustration when it does not achieve this at all.

7.4.2. Mentors

Conversations with mentors were important for us, getting an insight into the other perspective of mentoring. Learning and understanding that mentors are aware of the ambivalence their inputs can have and them trying to understand what are the influences of a positive or negative outcome. Also, learning that giving feedback and mentoring can be an exhausting task, especially if you have to do it the whole day. It is a challenge to always be present in the project discussed and not confuse it with the other project being done at the moment, often being similar topics.

Further, that they sometimes feel like they are not being listened to and that the time and effort they invest for feedback is not appreciated. From that also how happy some are, when the students take control of these mentorings and specifically ask for what they need. It should be evident that a bad mentoring is bad on both ends, that usually is how all social interactions work, they are a two way street. This is sometimes not as apparent when on the student side, this idea of the mentor as the teacher and entirely responsible for these interactions still remains from the first years of most of our educations. With this also comes the lack of transparency on what the mentors are thinking, which is what is expected of them in our schooling system but does not help create that image of a two-way street, that both parties are responsible and impacted by.

7.5. **Cultural Probe**

After some of the initial desk research and conversations with people, it became increasingly apparent that there was a filter that people were putting on when talking to us, knowing that this was our BA theme. Whether this was caused by propriety, thinking and rationalising in their heads more before we heard it or some completely different reason, it did not reflect what we had heard coming out of mentorings over the years. We wanted to gain a more direct and unedited view of the feelings that a mentoring can elicit and decided that a cultural probe was the way to go about gathering this. Having decided that communicating feelings through words put a level of filters on them, we decided to go with a more familiar language to most in our generation, to express feelings, memes. We asked our peers to send us memes of their feelings when walking out of a mentoring, which were then published on an Instagram account @ howfeedbackfeels, this would serve as a sort of literal mood board for us and as a mirror and tool to not feel so alone with their feelings for our participants.

We learned from this, that feelings regarding mentorings are incredibly diverse, not only between people, but also from one person themselves and they can also be quite intense and visceral.

7.6.   Surveys

Being aware of the limited perspective we have on the topic. We tried to check our assumptions against a more general opinion. More general, in this case, means the other departments from our school and some students from other design schools we sent the survey to. So it is still a pretty small scope, but since the application scope of our work is on the same scale, it makes sense not to extend it.

7.6.1.   Other Departments

Intention After some time having worked on the feedback and mentoring in our surroundings, we wanted to see how much we only address problems apparent in our own small bubble of interaction design at our school. From this, we created a general survey, where some of our assumptions were tested through questions addressing the feedback culture. To have some common ground on what we tried to examine, we started the questions with a short definition we had at the time of feedback.

We sent the survey to specific people in other departments and schools. To be specific, we got answers from students studying Visual Communication, Film, Industrial Design, Process Design, Fine Arts and Cast / Audiovisual Media.

<u>Questions</u>

We started with a short explanation, so we could assure a common understanding of the word feedback.

For us, feedback is a subcategory of information. Information is anything that reduces uncertainty. Feedback in the context of design often means making the difference between what is already there and what is wished to be achieved, visible.

- →   In which role do you see yourself when thinking about feedback?
- →   How important is feedback for your process?
- →   Do you pay attention to the way you are talking within feedback?
- →   How regularly do you include feedback in the work process
- →   Do you think the way you are located within a feedback changes its outcome?
- →   How are you physically located during a feedback?

<u>Results</u> The results of the survey were not that surprising. We saw that our feelings regarding feedback did not differ from other studies, departments or schools.

→   With most of the participants seeing themselves in both roles of giving and receiving feedback indicating the open feedback culture.

→   (7 out of 8 answers they see themselves as receiver and giver one only as receiver)

The following question could be answered with a value between 1 and 6. For comprehension, we only mention the average value we received. If there is a mentionable difference in the answer we would state that..

→   Feedback is also appreciated as an important part of their work. *(Avg. 5)*

→   They pay attention to what and how they are say in feedback. *(Avg. 4.2)*

→   They try to include feedback regularly in their process. *(Avg. 4.1)*

→   They do not think it is not important for the outcome of the feedback how they are located in the room. *(Avg. 2.9)*

Primarily they are located across a table or opposite each other while feedback, one mentioned a round table. This leads us to the assumption, that most of the mentorings and feedback are conducted sitting across a table,which is where we feel there is potential for our work.

In general, this survey showed us that we are not alone in our understanding and experience of how feedback is. Further, while making the survey and evaluating it, we acknowledged that this kind of quantitative research is good for reassuring not to be working around a personal bias, but not helpful to gather deeper insights or more understanding.

7.6.2. Psychological Safety

Intention Wanting to create a feeling of trust within the situation we build with our meeting interventions, the feeling of safety is vital, specifically psychological safety. It is an essential component of the risk participants are willing to take with their ideas and comments. If we would like to create an environment of honesty and vulnerability that really allows to learn and push a project forward, then that feeling of safety is a big part of the equation.

Having read and discussed countless times, the importance of trust and safety and having an idea of how we and the people we have talked with have experienced it within our studies, we wanted to get a more broad overview to validate or contradict our expectations.

Questions Taking note from tools created by Dr Amy Edmondson and adapting the questions to fit better with our practices, we ended up with 7 questions, that should indicate how high the students rate the safety within their meetings. These questions can be answered on a scale of 0-5 and are:

→ In a mentoring I understand what is expected of me.

→ I feel that my ideas and comments are being listened to and actively engaged with during mentorings.

→ It is easy to admit when things are not working in a project and ask for help from the mentors.

→ If I make a mistake, I do not feel like I am being judged for it by my mentor within the mentoring.

→ I feel safe taking a risk within a mentoring, such as voicing an idea that I have not thought through completely yet.

→ Everyone present in the mentoring feels able to bring up problems and tough issues such as ones concerning the mentors themselves.

→ I feel that mentorings exist and are conducted solely for my benefit and are mine to mould into what I need.

We then asked the individuals in the 2nd and 4th semester of our studies, the ones we would be doing interventions and testings with, to fill out the questionnaire, keeping in mind the module they were currently in and the experiences that they had there. Those being the ones we could place our prototypes within.

Results We received five answers and those gave some insight into the experience of the students, we will quickly go further into the answers. 0 always being the negative and five the positive unless indicated otherwise. To the question: "I feel that my ideas and comments are being listened to and actively engaged with during mentorings." 80% of the students answered that generally, it was between a 2 and 3. For "It is easy to admit when things are not working in a project and ask for help from the mentors." the same exact pattern with 60% saying that occasionally it is between 0 and 1. Mostly the answers land precisely in the middle of the majority and generally and then when we move to occasionally the majority answers lower with outliers to the extreme in both directions. For the question: "Everyone present in the mentoring feels able to bring up problems and tough issues such as ones concerning the mentors themselves." 60% of the participants answer number 2, both generally and occasionally, 0 being nobody and 5 everybody, quite a low results. The last answer definitely being the one that says the most: "I feel that mentorings exist and are conducted solely for my benefit and are mine to mould into what I need." 0 being for the mentor/other and 5 being for myself, here 60% answered between 0-2 generally and 80% occasionally.

When calculated all together 57.5 % of the answers are between 0 and 2 meaning that more than half feel more unsafe than safe in mentoring situations, regarding these specific situations of course. In general most answers to the questions lie in the middle or lower except for the questions: "In a mentoring I understand what is expected of me." and "I feel safe taking a risk within a mentoring, such as voicing an idea that I have not thought through completely yet." where 60% and 75% answered number 4 respectively, which is significantly different from the rest.

Meaning that there is still room for upward movement in creating a feeling of safety.

8. User studies and Guerilla testing

Coming out of our field research, we wanted to see if what people were telling us and we were observing, would be possible to intervene in, hack and influence. Through small tests and fast iterations we want to experience where leverage points are and explore where and how we can elicit best a change and as such in which direction we want to take our project.

There are still a lot of open questions, that through our testing we want to get closer and closer to answering.

Who are our users? Where in this vast field of feedback do we want to position our work? What is the situation we are targeting?

8.1. Concept Seminar Prototype

8.1.1. Intent — we are Interaction Designers, let us make a robot

Our first prototype was created under considerable time constraintsOur first prototype was created under considerable time constraints, which meant that we had little time to research and explore the field fully. So we decided that we wanted to use our prototype as a tool, to learn more about how people felt about feedback.

In our first short research, we saw a huge value in the preparation for feedback. We saw that the act of preparing for a mentoring, including formulating main points, positioning within the design process and defining the state of the project in itself, is quite a big part of why feedback is valuable to pushing the project further. We also discovered time as being a significant player, where the people receiving feedback often felt the mentorings were at the wrong time for them in the process. It is not evident that this problem is more or less impossible to solve in a school setting, because of the limited time a mentor has to spend on multiple students. Further, the non-systematic way students work, especially in a creative field, means having a non-linear process with unpredictable times when feedback would ideally happen.

This all led to the creation of our first prototype.

It should resemble a kind of feedback machine. Since we did not have the time to construct and program a functioning machine, we focused on creating a setting and objects where one can experience how a feedback machine could feel, wizard of oz style.

The general idea was that the user could approach the feedback machine, scan their work and answer some questions about the state of the project. Then the device would provide preprogrammed feedback, based on the answers the user provided.

Through this interaction, we wanted to achieve three things:

First, there is the process of bringing your work to the table and scanning it. This physical action creates space between oneself and the project, which allows the user to take a step back from the project and look at it from a different viewpoint. Which in itself can be enough for inspiration to strike or other realisations to happen. Second, the questions asked by the machine on the process and what the project is about,

since it cannot figure out what the project is about only by having a scan of an object, further helps the user gain a more distant view on the project. Finally, the preprogrammed answers the machine provides, will not be as suitable as the ones from an actual human giving feedback. However, the user still has to take position on the input given, which can lead to a reinforcement or a questioning of the current direction.

8.1.2.   Build — Fake it until you make it

We used a cardboard box to fit in a user interface, which provided information and questions to the user. Further, we attached a barcode scanner to the box and provided it with electricity, so it would be able to produce a laser, which imitates actually scanning an object.

In the user interface we had a fixed set of questions, which asked the user to situate their project in a broad manner. Based on the given answers, it would then be possible to select a suitable, but more general feedback. This answer would then be printed onto a receipt, like a piece of paper for the user to take with them, but also allowing them to throw it away if they did not see a value in the feedback.

pictorial page 16

8.1.3.   Test — Wizard of Oz

Since the machine itself was not working, the whole prototype being an embodiment of a thought experiment, a kind of bodystorming with supportive objects, more in line with speculative items than an actual prototype, we planned to test it accordingly. By creating and presenting the artefact, we wanted to get a feeling for how the idea and concept of a machine such as this would be received. We presented the idea and prototype as if it was fully functioning with videos in the concept seminar presentations, the mentors and our peers being the audience.

pictorial page 17

8.1.4. Takeaways

We did get a lot of reactions on how different people would feel about a feedback machine. Some mentioned that they do not believe a predefined and pre-inscribed feedback could add value to a project, others saw the opportunity of feedback, which one can get regardless of the time constraints, which demands that the users prepare themselves, which in itself can have a positive impact on the process.

The whole prototype was affected by the perspective and belief someone has on what machines can accomplish and what they cannot. People seem to have a strong image of what HCI is capable of. Often, the discussion surrounding our prototype evolved more into aspects of how the machine itself works and if it would be technically possible to generate a suited feedback, rather than the actual intention we had with the user preparing their feedback and having to classify the feedback generated.

It showed us that the people present have strong feelings about feedback and how difficult it is to give good feedback, almost feeling insulted at times by the notion that a simple algorithm could accomplish the same results. Feeling very strongly about their abilities with feedback. In a way, we were also trying to evoke those reactions by proposing the job of mentors be in part taken over by a machine, with this of course hitting a very natural human nerve, the fear of being replaced. Even, still we could glean that this is a topic, where a lot of emotion is involved, rather than something detached and easily viewed through a less personal lens. This made us realise the delicate balancing we had in front of us, when tackling this topic.

8.2.   **Mentoring Interventions**

8.2.1.   Intent

From the initial desk research and field research, there were certain themes that crystallised themselves as main themes we wanted to see if we could influence through interventions. We chose mentorings as a medium to test these in, since they seemed to contain most of these problems we wanted to test with. These overarching themes were:

→   Processing the feedback

→   Communication

→   Preparation

→   Goal / Motivation clarification

→   Creating trust

From here, we wanted to create specific interventions, targeting one of these that could then be tested in the individual mentorings.

8.2.2. Build

For each problem we came up with an intervention.

The problem stated and recognised	Our solution or intervention:
The missing possibility in verbal communication to react to something without interrupting the other person. Further the missing possibility to show how you are receiving what is being said in the moment, while the person is still speaking, giving them an indication of how the person opposite of the	**Mexican feedback** Inspired by a mexican standoff, we imaged a possible nonverbal communication that can happen parallel to the verbal parts supplementing each other. By positioning and moving yourself in the space according to how you feel about the feedback gives another layer of possible communication. By stepping back you are able to show that you feel misunderstood. By moving to the left or the right you can signal how much of what is being said you can relate to or need more explanation.
Having a rigid setting that a mentoring takes place in, an empty room, the mentor is already seated, you walk in and sit opposite them at a table, means that the two parties are very far away from each other emotionally. To create trust and break that expected way of interacting and communicating with each other, there needs to be a significant change in how the people are positioned toward each other.	**Lay down** By conveying feedback laying on your back and looking together at the ceiling or the sky, a new form of communication is needed. You are not able to interpret others facial expressions and you are more likely to close your eyes while talking, if it helps you to concentrate. Further, the feedback giver and the receiver are looking together in the same direction which creates a sense of working and solving problems together.

Communication and misunderstandings come hand in hand, you cannot have one without the other. This fact is not taken into consideration enough when conducting feedback.

Pantomime Making communication more complicated and less understandable seems to not make much sense. But having a clear communication deficit and being limited in the ways you can express ideas puts active attention on how and if the communication is received by the other party. Communicating only through pantomime itself cannot work for a whole feedback but some parts.

Voice only Creating an intervention for the same problem in a digital space, we planned the exact opposite of what we aimed at with the pantomime intervention. The participants are expected to turn off their cameras and only communicate through verbal means. Once again, through subtracting a communication channel, here the nonverbal, the still existing channels are emphasised.

Feedback communicates the difference between the momentary state of a project and the final goal of a project.

Often in design processes the final goal is not clearly formulated and communicated. In that case participants in a feedback often tend to use their own goals to compare the work against. Which often means that participants have trouble understanding others' feedback, since they are not thinking in the same direction for the project, leading to different metrics being applied to evaluate and participants confused and frustrated with what they receive back.

Goal matrix By creating and using a goal matrix, where a clear communication of goals and expectation can be made. The feedback will be easier to understand and process and confusion on why a certain comment was made easier to communicate.

Communication is often not something tangible, meaning that the act of actively listening cannot be transported very well, nodding and giving approving sounds not necessarily an indication of it. Verbally communicated ideas are also feelings and not as good at communicating ideas as visual representations. That is why "no prototype, no meeting" exists as a tool in design.

Doodles When creating doodles while the other party talks, the communication gets partly externalised. This makes it more understandable and reduces miscommunication. Further, the one doodling has to transform what the other person is telling them into tangible images to be able to draw it down. Making ideas more concrete and making it obvious that the doodler is actively listening to what is being said.

Often students see mentoring as a burden or as an intermediate check on their progress and do not see the potential in feedback by a mentor. Therefore they just attend and hope the feedback/ mentoring will pass as fast as possible.

But the value of feedback can only be understood or developed and used when the one receiving feedback, is invested and willing to work and be open to an understanding of another perspective on his work.

Prepare yourself By putting an emphasis on preparing for a mentoring and giving a helping hand or guidance on how to prepare and what to expect from feedback, we try to show what an impactful too

One of the most important aspects of functioning feedback is that there has to be a trust in the relationship of feedback giver and feedback receiver. Also, there has to be a trust by the feedback receiver into the capabilities of the feedback giver and their hopefully good intentions.

Emotions and reflections By a guided emotional check-in, everybody participating in the feedback gets emotionally invested in the other people participating. This can lead to a better understanding of each other and generally a better interpersonal relationship.

thesis page 72

8.2.3. Takeaways

The outcome of the mentoring interventions was somewhat disappointing. In the analysis of this prototype, several problematics came apparent:

We lacked communication of our intent and our ideas in our instructions. We were not able to sell the idea, that feedback conducted in the conventional way sometimes is not enough. Further, we were not able to show from where our interventions come from, therefore it felt like an additional burden for the mentoring, which already had a tightly measured timeframe. We made these assumptions based on the observations of mentors not trying our interventions at all and not commenting on why. Students were telling us, that they did not bring up the interventions due to a lack of time, not wanting to break the flow of conversation and the fear of wasting valuable mentoring time.

Also, we encountered for the first time the chicken-egg problem accompanying our work. For evaluating the tool we want to build, we need to generate as good as possible feedback on our interventions. For that, the tool we are trying to develop would come in handy. And to develop the tool, we would need as good as possible feedback. That is kind of an endless loop.

We planned to work against this problem by experimenting and testing qualitatively with our prototypes in the first stage. Meaning that a lot of the feedback we cleaned from conversations, personal recounts of experiences and experiencing or observing these interventions in action ourselves. And also by testing the prototype in an environment, where feedback already is something where emphasis is put on. And people are willing to rethink and discuss what feedback can be

8.3.   **Tuesday Evening Bash**

8.3.1.   Intent

Throughout the semester we have weekly bashes organised through the studies, where the different years are put into small groups to be able to talk about their current projects. Having experienced the same format the year before and having had quite bad experiences with silence, awkwardness and feeling like you are wasting time, we used it as a ground of testing for us, to see if this peer to peer mentoring on projects can be changed through our interventions.

We felt that some parts of the problem were the very unclear framework, nobody really knowing what to expect and do within this time. Our hypothesis was, that creating a visual representation of how this time together could be used would be helpful. By positioning yourself on this visual representation and the state of the project, you brought up and the possibilities of interaction and communication within this bash, clarifies the expectations and understanding of the parties involved. Ultimately, making it easier to start a conversation and clearer which kind of comment or feedback the presenting party would like to get.

8.3.2.   Build

1.0 We decided to go with a paper based prototype, that consisted of two parts and two tokens, that the participants would place their projects with on those two papers. One was accompanied with two questions for what they wanted from the overall meeting and a few possible answers they could choose from, also one blank. The idea being, to generate a basis of understanding and feeling more satisfied with the meeting, if what you wanted from it could be delivered, since the others knew what you wanted. The questions and some of the possible answers being :

1.   What would you like to use this time for?

feedback	brainstro- ming	user testing	disscus- sion	externali- sation	advice	random rant

2.   What would you like to receive from everyone else?

new perspec- tive	on feasibility	on next steps	on direction	on progress	on scope	in general

The second was the design process visualisation, where the participants would place where their project was within this process. The individual parts of the process being quite different in what you are concerned with and working on and as such being able to quickly communicate a lot about what you want from the others present with little words.

pictorial page 31

2.0 With this second iteration, we decided to leave out the process wheel, since we noticed that people had a lot of trouble placing themselves and their nonlinear process into such a linear graphic, seemingly confusing everyone present rather than clarifying. Further, we decided to concentrate on placing the tokens at the beginning of the meeting, putting symbols on each of them, that the participants could choose. This would save time and allow the participants more space to think, it would also generate a possibility to get to know each other a bit better to start out, when asking why they chose their particular symbol.

pictorial page 31

8.3.3. Test

We tested these interventions within the Tuesday bash format, meaning that there are between 3 to 5 people present, us or a peer from the 6th semester, one or two students from the 4th semester and someone from the first. We were the people to introduce the prototypes and make sure that the participants used them, also using them ourselves in our own bashes. We also instructed one of our peers for every testing to use the prototype in their bash as well and tell us how it went afterwards. So for every bash, there were two groups testing our prototypes.

pictorial page 33

8.3.4. Takeaways

The two prototypes were tested with two groups conducting each bash. Our own experiences and the responses that we got, were, that it makes the start of the meetings easier. Since it creates a common ground to stand on and participants know what direction to give comments in and it can also easily be communicated, if you rather talked about something other than a project. There still seemed to be a lack of consistency when the talking started, the prototype seemingly forgotten. The need for reminders throughout of what is expected and wanted is needed for the feeling of a successful meeting and use of time.

8.4. Thesis Peer Review

8.4.1. Intent

Wanting on one hand to further immerse ourselves in the perspective of the mentor and also wanting to know, if formulating clear goals as to what a project should achieve would make for more concrete and applicable feedback, we decided that peer reviewing the first chapter of our thesis would provide the opportunity for both. The hypothesis we drafted sounds as follows: Formulating clear evaluation criteria based on goals will make evaluating the writing easier, as well as make the feedback more detailed, concrete and specific, which will help in feedback processing and create feelings of time well invested.

8.4.2. Build

We tried to formulate criteria according to what we learned over the years to make a good text. We also asked the participants, if there was something specific that they would like the person reviewing their thesis to pay attention to, with the thought being that they themselves know their text best and what they are not sure about yet.

The general evaluation criteria:

→ There is a red string that you can follow — research relates back to core theme in an understandable manner

→ The writing is simple to understand — points made can be followed

→ any jargon is well explained and relevant/necessary

→ after reading you know the field in which the project is embedded — with examples of what came before it

→ the claims made have sources that back those up

→ explanations are not unnecessarily long — points are made succinctly

8.4.3. Test

Next, we randomly assigned the thesis papers between the participants, asking each participant to pull one of the instructional papers with a specific thesis on it from a hat. In total we tested this with 4 thesis, one of them being our own.

pictorial page 30

8.4.4. Takeaways

In general the guidelines and criteria significantly helped when reading through the thesis, since you knew what lenses you were analysing the writing through. You were less likely to be distracted by trying to find things, that were not good. Rather you could read the paper through in one piece and knew, that if you kept those criterias in mind you were going to give the person a useful feedback, even if none of the things had to be corrected. One of the main things that we learned was that time and the feeling of value is embedded in all of the feedback, especially when we consider peer to peer. There has to be an immediate, obvious, almost visceral benefit to investing the time into feedback, whether that is to prepare yourself with questions or the externalisation of your ideas. Find someone to bounce ideas off, get feedback from peers on your prototyping before testing it, or invest the time to read, correct and immerse yourself in someone else's thesis, to be able to give good feedback. All of these things have a benefit to you and your project when they are done, but most important, when weighing it against time and the time pressure, decide not to do them.

8.5.   **Online Feedback Community**

8.5.1.   Intent

Searching for a solution, where feedback could be more on demand and less at already long before appointed times, we think an online platform could come in useful. Further, we see the use of thinking through such a system. Wireframing and thinking through such a platform gives us a new perspective to our topic. We get challenged to already think of a way of communication and a user flow for receiving and giving mentoring on such a platform, which helps us in our process. Still we do not see this online system as a way we want to proceed for our work and its outcome.

8.5.2.   Build

We think of this system as a website. You can log in, upload your state of progress and receive feedback from other users on the platform. Maybe there can be categories in which the users and uploads are categorised, so you can have expert feedback. Still we would like to also have random persons giving feedback to the work. While wireframing, it became apparent to us, that an important part of a feedback in general is the framing and explanation of the project that should receive feedback.

pictorial page 22

In the process of developing a wireframe, we also came across an already existing, small community in the universe of reddit — an online platform, where users can post content, mostly in video or text form. There is a dedicated site, a subreddit r/design_critiques, for people wanting to receive feedback on their work, specifically their design work. Looking at this community, the importance of framing is confirmed, since some users posted their content without context, which lead to queries from other users. Further scrolling and looking through the entries on the site, we noticed that the feedback was always the same. Mostly stating it is good and how some things could be improved, but never a real critique or question going deeper than the appearance of something.

8.5.3. Takeaways

The biggest learning we take from this, is the importance of framing and giving context on your work, so it can receive valuable feedback. You need to communicate your goal with the project, so a person can give feedback.

8.6.   **Findings and next steps**

We want to keep this iterative prototype process and invest into a more reliable way of collecting insights on how they worked. We plan to realise one of the prototypes at the exhibition, for the visitors to test and try out. Further we have to look into the communication and building of trust more. Still, we believe trust can also be emitted through a clearly defined space, such as the feedback booth. Further, we see the power structure at hand as something, that we want to explore further, as a tool and seeing what influence it has on a mentoring. In general, we want to try and experiment with and see what is possible with creating more concrete objects, that have certain principles of interaction embedded in them, rather than paper prototypes that need lots of explaining on what to do.

9. Experiments

From the major points of leverage that we unearthed within the last chapter, we want to move on and try to create actual ideas and objects on how to tackle those. Things such as power structures, creating specific spaces for feedback and creating level understanding between all those present. We also wanted to tackle things such as our own feelings of being caught in a loop of inception with our topic. Is there a way to assess how well one of our interventions worked? Can we be sure of what we are creating if we cannot? Opening up to such questions and trying to answer them through creating externalisations that can be tested, is what this chapter is all about.

9.1. Feedback Confession Booth

9.1.1. Intent

The question we asked ourselves when we started out this proto-type was: Will creating a specific feedback environment with clear rules of engagement facilitate giving and processing feedback?

Inspired by the confession booth of the church, we wanted to create a space, that due to its makeup would make it easier to have an honest exchange. This should be generated through entering a space specific for feedback, that clearly transports a visible framework for communication and behaviour, which helps to shift the field of tension surrounding mentorings. Since the two people cannot see each other and because of that have to communicate verbally, it takes away the possibility of interpretation of nonverbal cues and necessitates that the participants focus on what the other person is actively trying to communicate. Meaning, that the participants have the possibility to react, think and reflect before communicating clearly their impressions and neither of the parties is being observed when doing this. On top of this. there is a system to pass the prototype to be reviewed to the other person. Meaning, for this space to be used, there needs to be an externalisation that can be passed, to be understood by the other person, where you actively curate and hand over what you want them to review.

9.1.2. Build

This prototype was built with things we could find in the atelier, using two room separators, some cardboard as the separation wall and some curtains from the front. In between, a cart can be found, where a box can be pushed through and accessed from both sides. This is the prototype delivery system between the two very small booths, each with just enough space for the chair to sit on.

pictorial page 24 & 25

9.1.3. Test

We tested this prototype with two of our peers also working on their BA, who needed feedback on a tool that they had created. It was important to them that the tool was easy to understand and that what they wanted to test made sense. So they settled in on one side of the prototype and Andreas settled in on the other, closed the curtain, placed the prototype for review into the box, pushed it through and let the feedback begin.

pictorial page 26 & 27

9.1.4. Takeaways

The experience did seem to create a feeling of safety and put the focus on verbal communication, meaning that the people felt they were more with themselves, rather than the other side and as such also communicated more succinctly. Unexpectedly, it also allowed for a more uninterrupted testing of the prototype at hand, since any nonverbal communication fell away and the feedback receiver had to wait for the other person to speak, to know what was going on. Further, the feedback receiver could not interpret the facial expression or the first and not intended interaction by the person testing the prototype, which gave space for actual uninterrupted testing and loud thought requested by the feedback receiver, since he still wanted to know how the testing went. The isolated feeling, of the small enclosed booth, contributed to feeling of safety and also emotional distance to what is said from the other person. Anything said felt more separated from the person themselves and as such made a less personally taxing feedback possible. This way of feedback was mentioned as something that is really useful in certain stages of the process, that the participants would use again in those instances.

9.2. **Uneven heights chair**

9.2.1. Intent

The idea for this prototype was informed by the power structures that are inherent in a mentoring setting between a student and a mentor. We wanted to make that visible and more feelable, so we decided to create a device that would allow for the student to place their mentor in the position, that they felt the mentor was coming from at the moment. With this, it allowed both parties to be more aware of that imbalance of power and making it possible to communicate and react to something, that is normally an invisible force on their interactions with each other.

We decided to implement this into the very typical mentoring picture of the mentor and student sitting, on chairs opposite each other, with the table and project between them. Only now the student has a remote with which he controls the height of the chair the mentor is sitting, as such the student is now able to move the mentor so that he can feel how he is talking down onto the student from their perspective. Or to indicate that they are at the same height and on even footing within the discussion and so forth.

9.2.2. Build

The way we chose to realise this chair, is by using a linear actuator as the leg of the chair and attaching a remote to the actuator, which can be operated from the other side of the table. Since the linear actuator can be moved in both directions, with only switching the polarity of the power supply, the interface only would need two buttons, which are closing the circuit when pressed in the polarity needed.

For the construction of the chair, we planned first to hack an existing chair, so we would not have to construct a chair from scratch. So we started with dismantling a broken chair in the atelier. In the process of taking away the last parts of the chair's body it became clear that the part we would actually like to replace, was press fitted into the sitting plate of the chair. To undo this joint we would have needed a huge amount of applied force and further an understanding and knowledge of where and how to press, to separate the two parts from each other. Knowledge we do not have. So we decided to go the way we first wanted to avoid, building the chair completely from scratch. Some basic wooden structures as a foot and a hole with the shape of the linear actuator and some wood clamps served as base. For the seating plate a nearly round plate of wood was enough.

The main motivation for this way of working was, that we did not want to waste money and resources for this quick prototype. Also the idea of the uneven heights chair being dismantled quickly, to reiterate or reuse some of the parts, was an important aspect of this process.

9.2.3. Test

Actually sitting on the chair works. Even further, the remote can be operated and the chair moves up and down according to the input. The linear actuator has enough power to lift and descend a person up to 100kg. Still the seating was not really stable. It was wobbly when moving your upper body and lead to a feeling of uncertainty which we did not intend nor like for this setup.

So, we used this idea, the prototype and the images we created, using it as a tool to elicit and gauge the reactions that mentors and students have towards this playing with the power structures. For one we had the prototype standing around, attracting attention from students, whom we then explained the usage it had, seeing what their immediate reactions would be to the idea of flipping the power structure of a mentoring around so drastically.

pictorial page 35

We then also presented the prototype in one of the progress sessions and there elicited reactions from the mentors on our prototype.

pictorial page 36 & 37

9.2.4. Takeaways

Originally, we wanted to use this prototype in an actual mentoring as a tool, interested in what the participants would feel, when confronted with such a huge change in their interpersonal relationship. We were hesitant to expect it to actually be used if implemented, since we believe that just handing the power over to the students, to indicate the power structure at work in the moment, obviously does not erase the actual structure, which would make it difficult for the students to actually use the prototype. Therefore, with the added difficulty to make the prototype work at the speed we would like, without creating too much noise and the reactions we had already received while building it, we decided that it would function better as a speculative object.

The object itself served this purpose on several occasions. The image and the idea of being able to adjust the height of the person sitting across the table in a mentoring is understandable and easy to imagine. The chair helped us to get into discussion with people and may push them to think about the structures around them.

9.3. **Assessment Tool**

9.3.1. Intent

Since the very beginning of this project, after every testing or experiment with people, we immediately conducted conversations and discussions with the participants, getting qualitative feedback on their experiences and impressions.

As we got further along with the project and conducted more and more interventions, experiments, prototypes and testings, we struggled to have a consistent and structured assessment of what we did. Which seems reasonable due to the interpersonal and individual perceived topic we worked with. Still, we felt a lack of assurance, since all evaluations were solely collected through verbal means, that we then took notes on, meaning our perception and bias would be shaping all to some degree.

We had already tested some online feedback forms, which did not work out very well. It was quite absurd to be creating tools to better feedback and then send the participants google forms to get feedback on those tools. So we decided on spending a little time on this and building a paper based prototype with which we could conduct the assessments. Taking into consideration what we have learned up until now on feedback and our own requirements.

9.3.2. Build

We started with a simple questionnaire, which the participants or the user of what we worked on could assess and rate.

Throughout the creation of this questionnaire, it was hard to find the right scope and intention behind the questions. Most of our interventions and actions are not comparable with a simple rating tool, since many different factors influence feedback. Like personal relationships, the current mood, or the personal preferences of format, can influence how a design meeting or mentoring can work. The consequence is, that every formal and informal feedback is unique and therefore hard to compare. Our work has to rely on tendencies as assessment.

We chose general questions regarding the overall feeling, how

easy our intervention could be integrated or if the intervention made the experience and the included feedback more or less processable and acceptable, than without our added tools and interventions.

In the process we felt the need to have these assessments as consolidated as possible. That is why we designed the questionnaire on one sheet for all participants of one testing. So, everyone being part of the intervention had to write on the same paper at the same moment. Further, we implemented a form in the middle of the page where the important discussion part, that we did not want to miss out on, could be initialised and immediately documented.

9.3.3. Test

We tested the assessment tool in peer-mentoring. It became apparent, that putting all perspectives of the participants on one paper, led to a difficult writing experience. Also, the structure for initialising the discussion was not understood without explanation. For us, it was good to have the paper as a physical reminder, that we have to do an assessment right after the mentoring and that letting the participants document themselves as well, means, that what they deem important is also documented, not just what we think is important.

9.3.4. Takeaways

We used our assessment tool only a few times. This shows, that the impact for us from the paper based tool was not as different as a discussion without it. Without it, we lack documentation of our discussions after testing, beyond the blog where we update and reflect regularly on the progress of our work. But this trade off, we are making for a more genuine and honest discussion with the people who tested our ideas. Further, this is one of the main skills of a designer, to assess the success of something through observation and discussion after the testing. We are relying on this skill, but are aware of a certain bias through this method.

9.4.   Conversation Board

9.4.1.   Intent

We noticed it ourselves, we still had trouble really defining and distinguishing consistently what we view as feedback. Unfortunately, these words have no clear demarcations, what is and what is not considered part of it. It is something that we feel would greatly facilitate understanding between each other, as to what perspective one is coming from, if the words surrounding feedback are clearly defined and can be used as a basis in communication.

9.4.2.   Build

The first thing we did was collect all of the words that we could come up with, that could describe the sort of comments heard in a feedback session.

feedback, instruction, idea, question for clarification, observation, evaluation, inspiration, off-topic remark, advice, critique, sense-making question, rehashing, recommendation, praise, opinion, comment

Then we tried to categorise and make sense of their definitions for ourselves, we did this in part taking inspiration from a text written by Grant Wiggins in 2012, especially when it comes to extrapolating and defining boundary lines on what feedback is. We quickly noticed that feedback is needed for a lot of these comments to be able to exist, but feedback itself can be defined very narrowly. We then started trying to visualise all of that collected knowledge in a way that would be easy to grasp. The idea behind this, being able to create understanding for ourselves and gather some more familiarity with this process of externalising and making understandable, wanting to create something more tangible in a next step with this knowledge.

We then created a visualisation in which we define feedback as an observation of the situation and communication of the distance to the goal. For example, an evaluation needs feedback to exist, in the sense that we use this distance to then make a judgement call of validity of the prototype at hand, ending with an idea on how good or bad the chosen solutionis. The same with advice and so on, meaning, that in every comment there is feedback buried somewhere, but feedback itself is almost never communicated "raw" as such in a feedback session.

pictorial page 38 & 39

9.4.3. Testing

We showed our visualisation to multiple peers, some mentors and also a communications coach. We handed the paper prototype over and waited to see how understandable it was what we were trying to show. We then often explained the idea behind the prototype and as such started discussions about what feedback is and if the way we had split the word and condensed it, made sense to their understanding of feedback.

9.4.4. Takeaways

We realised throughout our discussions, that our personal under-standing of feedback has changed quite a bit since the beginning of this journey and what our peers understand it as. As such, we also realised, that if we narrow down the meaning of feedback, it seems we have to redefine what the scope or the field we work in exactly is . If feedback is only the act of just communicating the difference between the actual and the thing that will be, creating objects and prototypes for this is insignificant.

Rather, we realised that the communication and active awareness of that difference in understanding of feedback and the usage of the more nuanced words is what would be beneficial to work on.

10. **Prototypes**

In this chapter it starts getting serious, creating actual prototypes that we can test at full scale, rather than just with one or two people. Taking mentorings as a ground to place our interventions in, them being a good collection of all of the topics we want to intervene in and change. Collecting all of the things we have learned up until now, trying to distil out the most important, repackage it to fit the frame of a mentoring and see if we still have to make adjustments to the percentage of alcohol in our mixture. Ending up with clear principles, structures and tools that we know work at the end of this period of testing.

10.1. **Structure**

One of the core concepts of our work is a structure which we are developing throughout the different phases of our work. We see the structure as the scaffold, which underlies the mentoring.

The structure we landed on can be broken down into a big and small loop. The big loop walking through the structure detailed below and the smaller loop interspersed within that big loop. The basis of the small loop is the recap.

10.1.1. Small Loop

Explanation or longer spoken text by one person.

Recaps are meant to be short instances where the party who did not present their ideas, reiterates what they understood and picked up on as important. This can happen based on doodles and notes made, or just from memory. Allowing the party having shared their ideas to see how their explanations were understood and interpreted, as well as once again establishing a baseline of understanding and residing on the same page.

This can happen at numerous points, where understanding is important for the further proceedings, for example after a field report by the feedback giver or after the discussion by the feedback receiver.

10.1.2. Big Loop

A Check-in is the first part of any meeting and consists of making sure a mentoring has a clear starting point, that opens up the frameworks surrounding a mentoring. Its job is also to create an even ground of understanding between all participants on the topics at hand. For this, tools such as emotional positioning, clarifying rules/ positions, mapping and telescoping can be used.

Field report At this stage we get to the part that most students are more familiar with, where they present the status of their project and any construction sites and difficulties they might have at the moment. Here, there are slight changes that can be made, depending on the focus of the mentoring. The construction sites can, for example, be read out loud by the timekeeper, the other participants listening to them. Allowing the feedback receivers to take a step back and listen to and re-contextualise what they have written down as important points that they are working on. Suppose the feedback receivers have something more concrete, either visually or as a prototype. In that case, they can also let the feedback giver explore themselves by only giving the necessary information, as such test where their project is and receive feedback on that specifically.

Also, a good exercise during this is for the feedback giver to doodle, what captures their attention and they deem important. This functions on multiple levels, for one it demonstrates that the feedback giver is listening and actively engaged with what is said. It also allows them to create a roadmap that they will come back to, letting the pen flow freely following the thoughts, images and associations that get created.

Discussion Now onto the part that most of the mentorings consist of at the moment, with a little twist of course, the discussion. For this, any number of conversation tools can be implemented, all having the same basis to them, the conversation board.

Check-out The last tool tackles the reflection of the meeting and allows the feedback receiver to formulate their next steps within the meeting, avoiding the crash of walking out of the meeting having no idea what to do now. They formulate their next steps as concrete as possible, the feedback giver then also formulates a next step that they see for this project. This last exchange allows everyone to make sure that the participants are still on the same page and that the discussion of the meeting made it possible to know which actionable next steps they should take.

We realised throughout our work, how important it is to implement a structure that can be relied on to produce a good outcome to the meeting, when followed. Implementing an actual structure that is consistently used throughout the meetings, gives the participants the opportunity to break that structure as well when needed. It gives a more conscious view on how a mentoring is constructed and how that changes its outcome.

For most of our testings, we applied this framework and its structure and filled it with tools supporting the understanding between the participating people.

10.2. **Tools**

10.2.1. Moderator / Timekeeper

The timekeeper is here to ensure that the time is kept and the structure followed. They also mark the beginning of the meeting and communicate the framework of rules and behaviour expected of the participants. Communicating what is expected of them and letting the participants know how and when they are expected to take on which roles and positions. Including someone, whose role is clearly communicated to cut in and move things along and put attention on the behaviour of the participants, takes the pressure away from the others of having to fill that rather uncomfortable role. Having another person there, who is not part of either the feedback receiver or giver, takes the power away from those two factions being put on opposite sides. It also allows the students to look into a mentoring from the outside and as such gain a new perspective on this habitual experience. Through that looking in, it also creates a bigger feeling of transparency and even ground between all the groups.

10.2.2. Emotional Positioning

A check-in can start with something like a short video or the emotional positioning board, which would signify the start of the meeting. Using the "Wie geht's dir?" framework, one can place oneself on the board, to communicate the states with which one is entering a mentoring. Setting expectations and also communicating on an interpersonal level, which is important for comfort and trust.

10.2.3. Clarify Rules/Positions

This next part exists, to set a clear framework and position the individuals with which lenses they are looking at the project at hand. The framework or a short introduction is read out by the timekeeper. Once again, managing expectations and allowing all participants to better contextualise and understand, where the others' comments and beliefs are coming from. The participants all state, which role they are taking on within this meeting and their reasons for being present.

10.2.4. Mapping

Next, the feedback receiver explains their topic and project in a very condensed form. This can range from one sentence to three main points, allowing the other participants to get situated. The receiver gets to condense all of their thoughts into one short statement, containing only the most pertinent points. The feedback giver then quickly, also in one sentence, communicates what their experience is with this topic, contextualising any further communication.

10.2.5. Telescoping

Here, we ask the feedback receiver to write down the goals they have for the project overall, a specific point that they are working on, or for the mentoring itself, depending on the situation. If it makes sense at that point within a project that the mentoring takes place, we also ask the feedback giver to write down a goal they see for this project. These goals are then positioned in the space with the project's current state as a counterpole. Drawing a frame between those two points, communicating what the meeting is talking about and addressing the movement between those two points. Like this, all participants have a goal to measure what is presented to and better understand the discrepancies that still exist. Communicating those goals creates a basis of understanding between the parties, as to what feedback is wanted.

10.2.6. Conversation Tool

The basis of a conversation tool is made up of various words, that a comment could consist of during a mentoring. Those words normally being:

Idea, opinion, evaluation (praise, critique), question, observation and sometimes also advice and feedback.

An example is the conversation board, where tokens are placed onto it, to indicate what the person was going to say or how the framing is to be understood with what they are saying. Anytime the feedback giver wants to say something, they have to think about what it is exactly they

are trying to achieve or say and position the token accordingly. As such, the feedback giver goes through another level of reflection during the conversation and can communicate and formulate more clearly what they want to say. The feedback receiver gets the chance to prepare and contextualise the comments they receive more readily and have an easier time asking for a specific type of comment or a more elaborate explanation of such a comment. It also takes on the function of a talking stick, where by moving the token onto a new field, they can indicate that there is something they would like to say.

10.3.   Mentoring — Testing Pool

10.3.1.   Peer Mentoring

We decided to go for it and plan mentorings for our peers. We wanted to be able to start testing in a bigger fashion, and while having an actual mentor in the mentoring sessions would be preferred, due to the power structures that are then present, we decided to try and see what would happen, with us being in that role. Wanting to also get a better feeling for the position and situation of a mentor in such a meeting.

Intent We decided to start out by thinking about what we would like to achieve and test within this prototype. We landed on three distinct points of importance:

→   reduce down to a few aspects of importance — do not talk about everything in random fashion, rather the relevant, important things for the moment

→   make positioning clear and what information is meant for where and as what

→   create lightheartedness and mitigate the fear of mistakes and repercussions

From this, we choose three interventions/tools, that we wanted to implement, to try to achieve this:

timer:

→   only a certain amount of time to talk and make a point

→   the person working on it knows best and can set focus on the important things, thus saving time

moderator:

- →   a neutral party, who mediates and makews sure, rules are followed
- →   keeps time and takes over the moderation
- →   visualisation:
- →   make the goals visible in front of you
- →   be able to move tokens around with comments
- →   what is what you are saying meant to be

From this, we then extrapolated a structure with timing, that would make space for all of these points.

Space The space in which such a meeting takes place, is going to shape the expectation, outlook and behaviour of its participants. So, getting the right tone it should convey is important, and one of the primary tools we have for changing and influencing such a meeting. We decided to try and go with something, that would rip people out of their expectations of how they move around and interact with our school's facilities. Something that would also make it very obvious, that they have entered a dedicated space, with specific and different rules from the everyday. With this in mind, we created a situation, that would expect participants to take off their shoes, something that does not happen within this space and sit on the floor, with pillows and a low table with our tools on it. We also made sure to quickly direct attention to this weirdness and acknowledge this unusual and in some capacity intimate change, by holding a short vote on who is wearing the best socks. It was also important to us to make the relation to each other in this setting clear by the position the participants hold within the meeting. Meaning, that the feedback receiver and giver are sitting next to each other, looking together at the project and tool on the table. The moderator on the other hand, is sitting across from them, such as to indicate the distance with which he is present here.

Testing We tested this peer mentoring prototype three times, two before and one after an iteration. This was done with peers who are also working on their bachelor projects, the meeting being about said projects. We each took the position of feedback giver and moderator once, to experience the different possible roles, that you could take up in this meeting. The moderator being in charge of the timer and moving through the tasks at hand, as well as making sure that the conversation board was used with each comment made within the discussion. That person also wrote down notes about what was discussed during the meeting and their own ideas about those.

pictorial page 44 & 45

For the third testing, we iterated on the presentation of the structure a little, having realised that having a visual of the structure, not only the timer, would be helpful in the flow of the mentoring for the feedback receiver. So, we created a page/space for each step within the meeting, trying to leave enough white space for the free exploration and expressing of ideas, but enough structure to give a sense of security and having an overview and a certain amount of control over the situation.

pictorial page 46

Takeaways On the more technical side, we received a good feeling and feedback on which of the aspects worked or did not. Things we would have to work on in the future was to more clearly communicate the rules and frameworks of our prototypes. The timer was deemed important in the sense of keeping the meeting on track, but otherwise did not seem to do anything positive and finally, it was brought to our attention, that if we have something, like an emotional positioning at the beginning, we actually have to acknowledge what happens there, rather than just moving on with the meeting. Otherwise the participants would get the feeling that what they shared, sometimes very personal, was being ignored.

Things that worked really well, was the overall structure, which everyone appreciated and also the conversation board. The board seemed to surprise almost everyone, us included, by just how much of an impact it has on a conversation.

pictorial page 47

In a more general sense, we also learned that every mentoring and how the participants felt towards it, was different. Having for the first time really taken on the role of the mentor in such a setting, it was quite interesting to see, how difficult it was to keep on top of where the conversation was going and any timing. On the other hand, the position of the moderator was quite a different experience. Having a view from the outside like this lets you notice things you never would have otherwise. It was the position we felt we learned the most in.

10.3.2. Process Design Mentoring

This prototype was created to be tested in the 2nd semester Process Design Module.

Intent Because of us not wanting to be present in this mentoring, having learned the benefit of letting participants test and try on their own, we conducted the confession booth testings. We tried to make the framework work as independent as possible. The whole framework was done in a way that it took place on a digital framework. Also all the information should be accessible in one place, so there will not be misunderstandings through not everyone having the same information. We again tried to use our developed structure in a variation. Putting emphasis on the recap by the mentors after the project presentation and the students after the mentoring. Also implementing the communication board, we aimed for an understandable conversation, based on being on common ground with each other.

Space The setup for the Mentoring was digital. This shaped the mentoring and its preparation. We decided on a combination of a zoom video call and a miro-board as a place to work in. We implemented our core scaffolding into a kind of a participative presentation, where the single tasks and the time frame was declared.

pictorial page 54

Test This prototype we tested with four groups of 3-4 students and one mentor, all online, meaning that any instructions and tools were on the provided Miroboard. We decided to not attend the mentoring itself, to prevent a test like situation, where the participants have the feeling they are being watched and have to do everything right (or how they imagine we intended it to be). This meant, that the digital space or framework had to be self-explanatory and understandable.

Takeaways The check-in with the feelings was very well-liked by most in this situation, as one of the participants told us: "Feelings at the beginning are really interesting, as it gets an honest vibe. In other mentorings, you tend to "oversell" your project, rather than being honest." Some also felt that they did not want to share their feelings but rather just get to the point of the meeting. Overall, the participants agreed with each other, that the choice of provided emotions was not enough to properly represent what they were feeling.

The overall structure seemed to work and was liked by most. In general, the feeling of it being a little too strict and constrained in time, especially in the parts that are also in a typical mentoring, it not being flexible enough to adapt to the individual project, was also communicated.

One participant mentioned, that they really liked having "a picture", an overview of the mentoring with all its parts, saying they normally just take notes, but felt this was a better representation.

Interestingly, it seems that some of the groups took it upon themselves to lead the mentoring with this new structure in place, especially the first two, which was very appreciated by the mentor.

We also were made aware, that a lot of the implementations we had made, were to clarify the communication from the mentors to the students, which made us realise, that we needed to do the same the other way around. Conversation is a two-way street, after all.

10.3.3. Service Design Mentoring — Prototype

This prototype was created to be tested within the 4th semester Interaction Design studies. The previously communicated goal by the mentors for this mentoring is as follows: "This mentoring is to reflect on your prototype and prepare you for the final presentation."

Intent We took the basic structures and ideas we had built for the peer mentorings and adapted them to this specific case. Wanting to see what kind of influence the power structures in a typical mentoring have on how our interventions are used and their effect on the meeting.

We wanted to focus on three aspects in particular, those being: to stay on track during the mentoring and focus on the main points of concern at this stage, clearly communicate the frameworks and positions the participants inhabit and lastly, to create lightheartedness within the mentoring. We used tools such as timer, timekeeper, check-in, telescope, construction sites, recaps, discussion board and next steps to achieve that.

pictorial page 50 & 51

Space The design of the space we created, is very similar to the peer mentorings. We wanted to see the influence it has on a situation, that has a more clear power structure and rigidness, that comes along with that. The individuals have a printed out structure with individual instructions, specific to their roles, written for every step.

pictorial page 52

Test We once again implemented a neutral third party, this time called timekeeper, who was a student from a different group, but the same class. For this testing, each mentoring takes 30 min with a 10 min buffer and a 5 min break, keeping the original time constraint of 45 min per group, that the mentors had implemented. There were four groups, for each there were seven people present, four students per group, two mentors and a separate student as timekeeper.

pictorial page 53

We tested this prototype, making sure that one of us was present at the beginning, to answer any questions and fix any technical difficulties. The rest of the time, they were on their own, one of us just popping in to take some pictures periodically. We then, after everything was said and done, conducted short conversations with each of the groups and mentors to get some impressions and feedback on how the experience was for them.

Takeaways Starting out with this setting, there were quite a few divided opinions, some really liked the unusual setting and felt that it made it much more relaxed. Others did not like sitting on the floor with mentors in this situation at all, and the mentors just said that they were sore after sitting on the floor for so long. Staying in the realm of divided opinions, this time within the participants themselves, there was once again the timer. The opinions fluctuated from it adding too much structure and stress, to thinking that having the different parts to the meeting and not getting hung up on particular points was very useful. The mentors mentioned being interested in seeing if the whole structure could not also be implemented in a more low key manner. Overall appreciated were the preparation, project goals, recap and conversation board, due to them bringing the participants on the same page. The conversation board elicited numerous suggestions on what could be done with the concept, from card decks to having a map of the number of times the individual parts were used throughout the mentoring, that one could look at.

During the mentorings, I felt that the timekeepers looked quite bored and were really not involving themselves much, so I thought that the feedback would reflect that observation. I was rather surprised, when it was unanimous by the people having filled that role, that they liked it, creating more transparency throughout the class and the individuals being able to take away a lot for their own projects as well. They did mention how hard they found it to interject and interrupt the mentoring. The rest of the participants seemed quite ambiguous about the role.

Ourselves, I think we once again learned just how hard it is to get people to try things that they do not immediately see the benefit in. We also still really have to work on how we communicate our prototypes to our user/tester group.

10.3.4. Service Design Mentoring — Storyboard

Students asked us if we could do another intervention in their next mentoring, and since we will take any opportunity to iterate on our ideas, we are back in the 4th semester Service Design Course again for testing.

Intent We really wanted to take into consideration all of the feedback we had received for this iteration, and since this is a storyboard mentoring, which is slightly different in its content, we changed different parts of this new prototype. For one, we decided to create two separate structures, depending on what stage the storyboard development is at. Also creating a category for testing, where the goal is clear and you would just like to have another set of eyes check if your ideas work and are understandable from an outsider's perspective. And a category for developing further your goal and ideas, where you do not have a concrete idea yet and would rather have input, on how to best transport your project.

In this mentoring we decided to take another approach for the conversation board. Seeing real potential in the concept, but not yet really having arrived at the ease of use we would like with the execution. We still wanted the participants of the mentoring to clarify, before they say something, what the intention behind the comment is. Since the terms used on the conversation board can be understood as different perspectives, we decided to double down on the image, that the comment made, is the product of a personal view. Therefore, we created the conversation glasses. Each pair of cardboard glasses represents a type of comment that can be made to a project. In the process of making these, we realised that putting on a pair of cardboard glasses, when already wearing glasses, is difficult, which is why we left out the temples. The user would only need to pick up the glasses and not actually put them on.

pictorial page 56 & 57

Having taken the feedback we got of the timing being a little bit too strict, we decided to just create four sections, within which the goal is to complete different points, allotting the time yourself. Those four sections being the check-in, with tools such as mapping, recap and telescope, next came the field report with the recap, then the discussion with the above-mentioned conversation glasses and finally, the next steps with a student recap. We created a video, which should serve as a visual representation of this timer, with a progress bar and the questions to discuss in this section of the mentoring, present on the screen. Because of technical issues, the video was not ready for the mentoring, and we were thrown back to the timer we had in the first place.

Space With this meeting, we decided to go in the opposite direction to the last one conducted in this class. Rather than sitting on the floor, everyone would stay standing up. This position is reminiscent of when posters, or visual works are evaluated by us, or our mentors, quite fitting for discussing something, that turns ideas into a visual language. We are also using the architecture of the room, which has already mounted ledges, ideal for positioning things on a wall, while still being comfortable to write on and look at. Further, it was important to us that all the participants of the mentoring, regardless of the role, would look in the same direction and have the same perspective on the project in the room. This spatial organisation of the participants mediated a sense of working together, instead of working against each other, which sitting across from each other transports.

Test The preparation for this mentoring by the students had several steps, which we packed into an editable pdf and sent to them beforehand. First, they had to boil down their topic into a short format, where they could present what they were doing in 3 sentences. Further, the mentors and the students had to bring a video that elicited an emotion from them in the last week. We also asked them to bring their storyboard printed out as an A2 copy.

The testing was once again conducted with the four groups and three mentors this time, we were also present throughout the mentoring, to observe this intervention. Giving a short introduction to the whole class at the beginning and then clarifying any questions with the individual groups, we also installed the timer at the beginning of the mentoring and intervened, if they were way off track with that.

The first thing the students were asked when arriving, was, which state the project was in out of the two, that we had determined. According to this, the structure was then slightly changed, for more possibilities of testing or support

Takeaways Things we observed were the different amounts of participation throughout the groups, but also inside the groups themselves. This is possibly down to personal preferences and daily moods. Since vocal participation in mentoring is influenced by psychological safety and the feeling of ownership in mentoring, it is something we will keep an eye out for. For us, it was interesting to see how the people positioned themselves and moved around the space during the meeting, when they had full freedom. The introduction part was more of an irritation for most of the participants. Most did not understand that the task of bringing a video, was to mark the start and allow for a moment of interpersonal acknowledgement of each other at the start of the mentoring.

On the other hand, we got told how useful the mapping at the beginning is for the mentors, being involved in so many projects, they find the reminder, of which project they are currently talking about, very helpful.

Further feedback we received, was, that the glasses worked significantly better than the board. The glasses got even more used, in the same manner as a talking stick. With the convenience of signalling to the other participants the urge to say something without interrupting them. The intention was, that the mentors had to be aware of what they want to say and what the context is, before they say it. Which resulted in mentors even questioning each other, if a comment actually was a question or rather a suggestion. This gave discussion in the feedback an authenticity, which helped further, with everyone being engaged. Also helpful to the students was the expansion of the recap.

pictorial page 60

Still, we observed some mentors switching between different kinds of feedback, without externalising and starting a rambly collection of various unrelated feedback. Which made it almost impossible to really process and take away any of it. In the same realm, when there were mentors only brainstorming with groups not that active in the discussion, there seemed to be little to no value for the group.

We still needed to explain certain tasks and guide the whole mentoring, which we have to address. This is where we see the potential of giving this role to the students. They can decide on the kind of mentoring and how they want to use it, which would lead to ownership by them.

10.3.5. Progress Session — We own our Feedback

The progress sessions are part of the overarching structure, through which our work and all Bachelor Theses in our studies emerge. There are three progress sessions, which serve as milestones for us to work to and as an overview and exchange between the whole class and teachers.

Intent Motivated by our mentor, we wanted to use our gained knowledge and insights for ourselves. Since the discussion and feedback from the last two progress sessions were unstructured and not really graspable for us, we tried to develop a system where we could get more useful and applicable feedback.

A main problem in the group discussions and feedback from a bigger audience is, that we, as humans, can listen and concentrate only to one voice at a time. Verbal communication only consists of a one-way single channel of exchange. If one person talks, nobody else can talk. Regardless, most of the Q & A's and discussions after presentations only use the verbal channel for feedback. This leads to many people in the audience willing to give feedback, but because of time limits, not giving it.

We all can relate to the feeling of pressure in presentations, conveyed through the arrangement of the audience-presenter situation, when held in a conventional setting. The person presenting is exposed in front of a crowd, where the feedback giving person gets safety through the anonymity of being part of a crowd. Still, the people in the crowd are aware of this imbalance and pressure on the person presenting, which leads them to stay vague in their feedback, to prevent an uncomfortable situation for both parties. The critique, or the critical question, gets reformulated because of fear of the person presenting getting harmed.

We approached these two problems with different solutions.

Space — tackling the elements observed. By letting the audience conduct written feedback on post-it notes, we solved the problem of the one-way channel of communication. We wanted to receive feedback on our style of presentation, regardless of the impact on our work and feedback on our work, regardless how we presented it. By hanging up two posters, on which we would state what exactly we wanted to have feedback on, the audience had a designated place to leave their feedback. And for us, it was easier to understand the context of the comments.

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By leaving the room, while the audience had time to formulate and attach their feedback on the fitting poster, we gave the audience time to reflect on the presentation, before giving their comments and thus tried to avoid the "making it less harmful "type of the feedback. We came back after some time to use the elaborated feedback of the audience for a better-informed discussion.

By giving the audience the advice of reseating themselves in a random order after every presentation, we tried to break the strict audience-presenter arrangement and the fatigue effect of always having the same perspective and hearing the voices always from the same direction.

Test — adapting on the go. Time is limited. Especially when presenting in a clearly structured time frame, as given in the progress sessions. This is why we could not test this prototype as intended. Because of time restrictions, we could not do the intended discussion round after we had left the room for the audience to place their feedback on the posters with post-it notes.

pictorial page 63

One mentor found the fact, that she could not address her feedback directly to us, unfair. She mentioned, that she would like to see and hear our reaction to the feedback and felt that this was missing in our method.

After our presentation, we wanted to further implement the method in the following presentations. Due to insufficient communication and explanation from our side, this did not happen at all in the presentation right after us. We are still a bit unsure, if it was only the lack of clear and actionable communication, or also some sluggishness of the audience.

So at the beginning of the next presentation, we reiterated, that we would like to test out our prototype with all of the presentations. We did adapt the idea to a sort of silent comment that could be made, while the discussion was progressing. We made clear, that standing up during the discussions and giving post-it feedback while the others were still talking, was welcomed.

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Ths adaptation worked, so that our testing still proceeded. But we recognised, that the amount of feedback on the poster was getting significantly less after every presentation. Believing that this is because of the barrier of standing up and potentially attracting some attention, we proposed for the whole audience to stand up during the discussion. It worked for that one presentation, but after that, the audience did not seem to want to do it again, groaning about not wanting to move around that much. It also gave a weird dynamic of having the audience be on the same level as the presenter and, as such, them maybe also seeming more imposing. We had not thought of this before, that being on eye-level really only works when you are not outnumbered quite as much, so we did not enforce it again.

Lastly, we could observe several people in the audience adapting themselves to the new format. Some took several empty post-it notes to their place before the presentation, to write the feedback down the moment they thought of it. Some also adopted a routine, where they always stood up after the presentation, turning their back to the discussion, thinking about the feedback they wanted to give and addressing this with the yellow sticky paper.

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Takeaways The main learning would be, to not be afraid of adapting the initial idea to the circumstances, when it comes in contact with people and does not work as intended. Once again, we realised how difficult it is to communicate a new format or a change to people in the habit of using the existing one. Also that there are many iterations and testings needed for an explanation to be clear and as understandable as possible.

From the audience, some recognised a similarity between our format and the chat function in zoom meetings. The zoom chat is one of the good things that developed from all the difficult changes that came with remote working and schooling during the pandemic years. Its informality and the possibility to add quick comments and notes without taking the whole stage in a meeting, added another layer of exchange. Similar to our feedback format.

10.4. **Learnings**

10.4.1. **Theoretical**

There are two different aspects to what we learned.

The first being a theoretical understanding of what feedback is. We have created an understanding for ourselves of what feedback is, how it is applied, and how it can be communicated positively or negatively. Also, what can affect feedback and which circumstance can enforce or blur a feedback. Further, we learned that feedback is a word with many different meanings, consolidated in the term semantic bleaching. Building on that is the importance of transmitting a context with feedback for it to be understandable from the recipient's perspective.

Therefore, we now know that it is not essential to nail down what feedback means, but to find out what the people across from you mean when they bring it up.

10.4.2. **Practical**

From our practical work, we picked three main components, that we build our final prototype on. They are where we see the most potential to affect how feedback is received and conducted, which has been informed by all of the previous testings. These are the leverage points in the system of feedback that we found for mentorings in the interaction design studies. We see the most potential of having an impact through designing and changing parameters in these three branches of feedback.

Communication Communication is the medium, with which feedback gets put into existence. Understanding that communication on its own has many potential pitfalls and needs to be specific, helps in understanding that there needs to be assistance by externalising, for communication to be efficient. Meaning, establishing a communication culture, reflection, reiterating and recapping on what is understood and how. The beauty of miscommunication in relation to design is that it creates the basis of new out of the box ideas. The line between it being a wonderful tool that we

constantly use and it making understanding each other impossible only breeding frustration, is very small. Defining how something is intended or meant and making comments concrete, by contextualising them in predefined ways can make that line easier to detect. Such as by using a conversation tool that gives you helping hand in reflecting on your words.

Structures and breaking with them if needed. Implementing structures and encouraging the users to break them. The ability to deliberately break rules, is part of what makes design so able to create new solutions, that can surprise with their effectiveness. We often have the idea of design being intuition, freeflow and a lot of blind understanding, designers not being attached to norms and structures and through this freedom coming up with unique and new solutions.

We think that this ideal is something to live up to.

Still we faced the reality of being inside a school, that has to adhere to a system. A system which brings power structures, different motivations and diverse ideas of how to best manage these. Inside these differences, we need to have structures to rely on. Structures implemented by both parties, the feedback giver and receiver and an understanding of the value of this structure, which can be prepared and relied on. So when we think about mentoring, there is a common ground for all to build on or to break with. We still want to encourage people to leave the armature given, finding solutions outside of the box and being free to choose, if they want to follow a structure or not. But for that to happen, we need a structure to break with in the first place.

Ownership Lastly, we learned, that ownership of a mentoring is crucial. Before we started with this thesis, the ownership of mentorings and feedback was unclear or pushed off onto the mentor, being the one teaching and therefore in charge. Through our work, we realised the immense power lying in the recipient owning their feedback or mentoring.

We have to acknowledge, that this is where we have the most missed potential in our early prototypes, since this is something that we only discovered as such an influential leverage point through our testings. Creating frameworks that clearly puts that ownership in the hands of the students facilitates a lot of the communication and makes fulfilling expectations a reachable goal for the participants.

11. Results

11.1. The allure of the incidental

The first result we achieved with our work, we already experienced in the early stages of our process. Merely by us challenging the status quo, simply by stating our project, pointing a finger at mentorings and indicating that there could still be room for improvement, we invited everyone to reflect on the topic with us. Resulting in interesting discussions and reflections with mentors and students from the beginning and throughout our work. Without our active assistance, many around us began to ask themselves what feedback is, can and should be for them.

Further, several mentors took isolated parts of our early prototypes and interventions and integrated them into their own practice. Something we are proud of since we were not sure how well our project would be received and how big the willingness would be, to try what we were proposing after our first prototype.

Both results being more byproducts of our bachelor thesis, we want to put a bigger emphasis on our intended results.

11.2.   **Final Prototype**

The final prototype is a toolbox. Containing three analogue and digital tools, helping giver and recipient of feedback in mentorings and design meetings.

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11.2.1.   Structure

The primary tool in this arsenal is the structure created, which gives mentorings a strong basis and the participants something to hold onto and work off of. By having the students create the structure, the responsibility of taking an active role in mentorings is firmly placed on their shoulders. They are the most knowledgable when it comes to their project, so they are pushed to take ownership of that mentoring time and indicate what they would like from the mentor, requiring them to consider what a mentoring can be.

The structure is created through a digital tool, consisting of questions that determine a structure, methods and tools, that are then proposed to the students. Asking questions about the state of the project within the design process, their previous experiences with the mentor and how concrete and externalised they are with their work, allows the basic structure that we created to be populated. The basic structure is still the same as for the previous prototypes, having proven itself useful, consisting of check-in, field report, discussion and check-out with recaps in between the major sections. According to the answers, certain tasks and methods are proposed for those sections. What preparations would be useful and tools that they should take with them, both from our toolbox and more general ones, is indicated as well. ¨

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By proposing a specific form for the mentoring to take we cut down on the hurdle of time, while still allowing students to adapt to their need. By introducing this method within the studies we open the door for students to take control through a framework that clearly communicates this expectation to everyone involved, giving them the confidence that the mentors have those same expectations.

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This new structure is supported by the two next tools we created. These tools are not, as such, vital to the procession of the mentoring, but they help with breaking habits and make implementing the new frameworks much more manageable.

11.2.2. Communication Cubes

The first of the two is a communication tool. This object has an embedded request for the person talking to contextualise their feedback and define which intention they have with it. Which is a further development from the conversation board and the conversation glasses.

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We enforce the use of the object as a talking stick by having to pick it up and indicate a side with the comment you intend to make before you start talking. By having two of these cubes within one meeting, we allow the possibility for other people to pick up the second cube, while someone is talking and as such indictate that they have a comment too, without inerrupting the person speaking. We also implemented an internal timer, indicating through LEDs that dim and a vibrational output to the person talking in a non-disruptive way, if they are extending their comment for too long.

11.2.3. Timer

The second physical aspect of the toolkit is a timer, with which the structure can be visualised. The Leds indicate the time left, which allows the participants to get a feeling of time within the mentoring without being stressed by a ticking clock. Further there is the option of blending in the structure and sections with the color of the Led, allowing the participants to focus on the present discussion, since they can see that there is time allocated that is still left for them to bring up certain points.

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12.   Conclusion

12.1. Contribution

Some of our contributions we have already touched on in our results. We managed to put a spotlight on the topic of feedback in our class and across the whole department of interaction design. The way we have designed our tools and the ideas behind them allowing for an examination and reflection of experiences and behaviours in ones own practice. Through the physical and concrete nature of our ideas the entry point for changing the habits and frameworks being facilitated. We could already observe some changes in how mentors and students conduct their mentoring. Be it a mentor being extra conscious of what and how something is said, others implementing some of our developed interventions into their practice, or the students being particularly conscious of preparing themselves for mentoring.

Through our examination of the term feedback and taking apart the different elements it can contain and visualising this, we contributed to a further understanding of the concept of feedback applied in design schooling. As well as the importance of feedback being contextualised for every party to understand it, which is where our toolbox stems from.

12.2. **Future Steps**

An important future step of our work would be the testing and reiterating on our final prototypes. This would mean testing it out in as many mentorings as possible. Further, it would be necessary to work outside our own school environment, to test our work with people not having followed our process so closely. How we communicate our tools is a continuous work in progress that only becomes more important when we test them more rigorously and would take some more work as well.

Some more conceptual, experimental and radical interventions with less concrete expected results could also really help to deepen the understanding of feedback. We neglected these, because we felt the pressure of having to ensure, that mentorings and feedback generated in our testings were valuable and useful for the students. Still, we think a more physical and embodied examination of the topic has the potential to excavate more insights on the tacit knowledge of feedback, which is a point not tackled in our work as much as we would have liked to.

13.   References

13.1. **Books**

Bar-Yam, Y. (2002). GENERAL FEATURES OF COMPLEX SYSTEMS. In D. Kiel (Ed.), KNOWLEDGE MANAGEMENT, ORGANIZATIONAL INTELLIGENCE AND LEARNING, AND COMPLEXITY-VOL 1. Encyclopedia of Life Support Systems (EOLSS).

Boud, D., & Molloy, E. (2013). Feedback in higher and professional education : understanding it and doing it well. Routledge.

Dubberly, H. (2004). How do you Design?-A Compendium of Models. Dubberly Design Office. http://www.dubberly.com/wp-content/uploads/2008/06/ddo_designprocess.pdf

Edmondson, A. (2004). Psychological Safety, Trust and Learning: A Group-level Lens. In R. Kramer & K. Cook (Eds.), Trust and Distrust in Organizations: Dilemmas and Approaches (pp. 239–272). Russell Sage Foundation.

Edmondson, A. C. (2018). The fearless organization : creating psychological safety in the workplace for learning, innovation, and growth. John Wiley & Sons, Inc.

Fernández, J., Galindo, C., Inmaculada García Moral, & Springerlink (Online Service. (2011). System Engineering and Automation : An Interactive Educational Approach. Springer Berlin Heidelberg.

Gibbs, R. W. (2006). Embodiment and cognitive science. Cambridge University Press.

Holland, D. (2013). Integrating Knowledge Through Interdisciplinary Research Problems of Theory and Practice. Routledge.

Kornblith, H. (2014). On Reflection. Oxford University Press.

Nonaka, I., & Takeuchi, H. (1995). The knowledge-creating company: How Japanese companies create the dynamics of innovation. Oxford University Press.

Portmore, D. W. (2019). Opting for the best : oughts and options. New York; Oxford Oxford University Press.

Richardson, G. P. (1991). Feedback thought in social science and systems theory. University Of Pennsylvania Press.

Sanford, C. (2018a). Capter 6: Feedback and Human Capacity. In No more feedback : cultivate consciousness at work. Interoctave.

Sanford, C. (2018b). Chapter 5: A Short History of the Concept of Feedback. In No more feedback : cultivate consciousness at work. Interoctave.

Sousanis, N. (2015). Unflattening. Harvard University Press.

Strahm, P. (2008). Qualität durch systematisches Feedback : Grundlagen, Einblicke und Werkzeuge. Schulverlag Blmv.

Thun, V. (2002). Miteinander reden : Störungen und Klärungen : Psychologie der zwischenmenschlichen Kommunikation. Rowohlt.

Turner, S. P. (2015). Understanding the tacit. Routledge, Taylor & Francis Group.

W Ross Ashby. (1957). An introduction to cybernetics. Chapman & Hall. http://pcp.vub.ac.be/books/IntroCyb.pdf (Original work published 1956)

Wiener, N. (2019). Cybernetics Or Control And Communication In The Animal And The Machine. Mit Press. (Original work published 1965)

13.2. Conference Papers

Blunt, H. (2012). The semantics of feedback. 16th Workshop on the Semantics and Pragmatics of Dialogue, SEMDIAL 2012, 118–127. http://semdial.org/anthology/Z12-Bunt_semdial_0016.pdf

Dubberly, H. (2011, March 28). A proposal for the future of design education. Design Education Manifesto. ICOGRADA.

Dubberly, H. (2014, October). A Systems Literacy Manifesto. Relating SystemsThinking and Design. RSD3 2014 Symposium, Oslo.

Nielsen, J., & Molich, R. (1990). Heuristic evaluation of user interfaces. Proceedings of the SIGCHI Conference on Human Factors in Computing Systems Empowering People-CHI '90. https://doi.org/10.1145/97243.97281

13.3.   **Journal Articles**

Bardwell, R. (1981). Feedback. The Journal of Experimental Education, 50(1), 4–9. https://doi.org/10.1080/00220973.1981.11011792

Boud, D. (1991). Giving and Receiving Feedback: A Guide to the Use of Peers in Self Assessment. HERDSA Green Guide, No. 5(Second Edition).

Brown, T. (2008). Design Thinking. Harvard Business Review. https://readings.design/PDF/Tim%20Brown,%20Design%20Thinking.pdf

Carless, D. (2006). Differing perceptions in the feedback process. Studies in Higher Education, 31(2), 219–233. https://doi.org/10.1080/03075070600572132

Curzon-Hobson, A. (2002). A Pedagogy of Trust in Higher Learning. Teaching in Higher Education, 7(3), 265–276. https://doi.org/10.1080/13562510220144770

Dannels, D., Gaffney, A., & Martin, K. (2008). Beyond Content, Deeper than Delivery: What Critique Feedback Reveals about Communication Expectations in Design Education. International Journal for the Scholarship of Teaching and Learning, 2(2). https://doi.org/10.20429/ijsotl.2008.020212

Dimitrakopoulou, D. (2021). Designing Generative Dialogue Spaces to Enhance Focus Group Research: A Case Study in the Context of COVID-19 Vaccination. International Journal of Qualitative Methods, 20, 160940692110667. https://doi.org/10.1177/16094069211066704

Dubberly, H. (2010). The space of design. Interactions, 17(5), 74. https://doi.org/10.1145/1836216.1836236

Edmondson, A. (1999). Psychological safety and learning behavior in work teams. Administrative Science Quarterly, 44(2), 350–383. https://doi.org/10.2307/2666999

Edmondson, A. C. (1996). Learning from Mistakes is Easier Said Than Done: Group and Organizational Influences on the Detection and Correction of Human Error. The Journal of Applied Behavioral Science, 32(1), 5–28. https://doi.org/10.1177/0021886396321001

Hardavella, G., Aamli-Gaagnat, A., Saad, N., Rousalova, I., & Sreter, K. B. (2017). How to give and receive feedback effectively. Breathe, 13(4), 327–333. https://doi.org/10.1183/20734735.009917

Hattie, J., & Timperley, H. (2007). The Power of Feedback. Review of Educational Research, 77(1), 81–112. https://doi.org/10.3102/003465430298487

Jones, P. H. (2010). The language/action model of conversation: Can

conversation perform acts of design? ACM-Interactions, 16. http://www.dubberly.com/wp-content/uploads/2013/08/Jones_Language-action-model.pdf

Kark, R., & Carmeli, A. (2009). Alive and Creating: The Mediating Role of Vitality and Aliveness in the Relationship between Psychological Safety and Creative Work Involvement. Journal of Organizational Behavior, 30(6), 785–804. https://doi.org/10.1002/job.571

Kluger, A. N., & DeNisi, A. (1996). The effects of feedback interventions on performance: A historical review, a meta-analysis, and a preliminary feedback intervention theory. Psychological Bulletin, 119(2), 254–284. https://doi.org/10.1037/0033-2909.119.2.254

KRAUSS, G. G., & NEELEY, L. (2016). Peer Review Feedback in an Introductory Design Course: Increasing Student Comments and Questions through the use of Written Feedback. International Journal of Engineering Education, Vol. 32(No. 3(B)), pp. 1445–1457. https://www.ijee.ie/latestissues/Vol32-3B/15_ijee3230ns.pdf

Landrum, A. R., Eaves, B. S., & Shafto, P. (2015). Learning to trust and trusting to learn: a theoretical framework. Trends in Cognitive Sciences, 19(3), 109–111. https://doi.org/10.1016/j.tics.2014.12.007

Matthews, S., & Matthews, B. (2021). Reconceptualising feedback: Designing educational tangible technologies to be a creative material. International Journal of Child-Computer Interaction, 29, 100278. https://doi.org/10.1016/j.ijcci.2021.100278

Nussbaum, B. (2004). The Power of Design. Business Week. https://new-ideo-com.s3.amazonaws.com/assets/files/pdfs/news/power_of_design.pdf

Pacheco, D., de Serpa Arruda Moniz, A. I. D., & Caldeira, S. (2015). SILENCE IN ORGANIZATIONS AND PSYCHOLOGICAL SAFETY: A LITERATURE REVIEW. Europe Scientific Journal, 11(ESJ AUGUST 2015 /SPECIAL/ EDITION). https://eujournal.org/index.php/esj/article/view/6156

Ramaprasad, A. (1983). On the definition of feedback. Behavioral Science, 28(1), 4–13. https://doi.org/10.1002/bs.3830280103

Ridao, S. (2017). "A Reader, Not a Speaker": On the Verbal, Paraverbal and Nonverbal Communication Trichotomy. Revista Digital de Investigaci N En Docencia Universitaria. https://doi.org/10.19083/ridu.11.499

Sargeant, J. M., Mann, K. V., van der Vleuten, C. P., & Metsemakers, J. F. (2008). Reflection: a link between receiving and using assessment feedback. Advances in Health Sciences Education, 14(3), 399–410. https://doi.org/10.1007/s10459-008-9124-4

Shute, V. J. (2007). FOCUS ON FORMATIVE FEEDBACK. ETS Research

Report Series, 2007(1), i–47. https://doi.org/10.1002/j.2333-8504.2007.tb02053.x

Thurlings, M., Vermeulen, M., Bastiaens, T., & Stijnen, S. (2013). Understanding feedback: A learning theory perspective. Educational Research Review, 9, 1–15. https://doi.org/10.1016/j.edurev.2012.11.004

Vanhala, M., Puumalainen, K., & Blomqvist, K. (2011). Impersonal trust. Personnel Review, 40(4), 485–513. https://doi.org/10.1108/00483481111133354

13.4. **Various**

Report: Mc Gill, R. (2019). Verbal Feedback Toolkit. In ucl.ac.uk. UCL Access and Widening Participation. https://www.ucl.ac.uk/widening-participation/sites/widening_participation/files/2019_verbal_feedback_toolkit_final_print.pdf

Website: Chochinov, A. (2018, September 25). Change Everything You Hate About Meetings with ONE WORD. Products of Design. https://productsofdesign.sva.edu/blog/nomeeting

Douglas, H. (n.d.). Etymology of feedback. Online Etymology Dictionary. Retrieved May 1, 2022, from https://www.etymonline.com/word/feedback

evaluation noun-Definition, pictures, pronunciation and usage notes | Oxford Advanced Learner's Dictionary at OxfordLearnersDictionaries.com. (2022). Oxfordlearnersdictionaries.com. https://www.oxfordlearnersdictionaries.com/definition/english/evaluation

Video: Jacobs, A. J. (2013, December 3). AJ Jacobs: The Importance of Self-Delusion in the Creative Process. 99U. https://www.youtube.com/watch?v=_bnSTo9ur3M