

Creating a home for experiential learning

A story of Design Loft in Graz University of Technology

MSc program in Management and International Business

Master's thesis

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Abstract

Today's graduates, regardless of their discipline, need thinking and working skills, which help them to tackle complex real-life problems and challenges that cannot be solved with rational and straightforward problem solving. Environments, which support project-, problem-, and passion-based learning, or more broadly experiential learning, are needed to teach graduates soft and practical skills. Hence, there is a need to redesign traditional classrooms and learning spaces to support this non-theory-lead learning. The focus is on how we are learning, instead on what we are learning.

This thesis builds on the development that took place in a product development course Product Innovation Project. Hosted by Graz University of Technology in Austria, the course is based on the approach of experiential learning, with students working in interdisciplinary teams and developing physical prototypes in collaboration with industry sponsors for one academic year. This thesis was initiated to better support the learning experience and develop a physical space which would support the different steps of product development such as prototyping, ideation, and team working, and be a place for the students and faculty to meet, get together, and interact.

The main body of the data for the study was collected during an intensive three-month development period from October 2013 to December 2013 in TU Graz, as the researcher took the role of an action researcher, helping to develop and set up the new learning environment. The findings for this study are a result of thorough analysis of participatory observation field notes, and semi-structured open interviews conducted in April 2014. The data has been supported with literature from the fields of experiential learning, theories of affordances, communities of practice, and spatial design.

As a result, the thesis depicts how the learning environment supporting experiential learning was set up, and introduces the new ways of working that the space afforded. The study describes how the physical, social, and mental space was developed by redesigning the assigned office space, involving the users in the development process, agreeing on common rules and practices, bringing life inside with events, and setting an example on how to utilize the new space while also supporting the local stakeholders taking ownership of the space. For example, informal events increased the feeling of togetherness, and decreased the barrier for communication. The Design Loft became a comfortable home base, where it was possible to combine work and fun, spend time, and relax. Hopefully the results can inspire anyone who is passionate about developing better learning culture, and setting up an experiential learning environment.

Keywords Experiential learning, Physical space, Social space, Mental space, Action research, Product Innovation Project

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Tiivistelmä

Nykypäivänä korkeakoulutetut nuoret tarvitsevat alasta riippumatta teknisten ja teoreettisten taitojen lisäksi vuorovaikutus- ja työskentelytaitoja, jotka auttavat heitä ratkaisemaan monimutkaisia työelämän ongelmia. Työtilalla ja –ympäristöllä on suuri rooli projektiperustaisen, ongelmalähtöisen, käytännönläheisen ja kokeilevan oppimisen tukemisessa, mutta silti tilat on usein jätetty toissijaiseen rooliin. Perinteisiä luokkatiloja tulee kuitenkin kehittää ja valjastaa tukemaan käytännönläheistä ja vuorovaikutteista oppimista. Kyse ei ole niinkään siitä mitä me opimme, vaan miten me opimme.

Tämä lopputyö perustuu Grazin teknillisen yliopiston poikkitieteellisen Product Innovation Project –kurssin työtilojen kehitykseen. Ongelmalähtöiseen ja kokeilevaan oppimiseen perustuvan kurssin aikana, opiskelijat kehittävät lukuvuoden verran fyysisiä tuotteita yhdessä sponsoriyritysten kanssa. Tutkimus sai alkunsa, kun syntyi tarve tukea kurssilla tapahtuvaa oppimista ja työskentelyä paremmin kehittämällä uudenlaisen työskentely-ympäristön. Tilan tarkoituksena oli mahdollistaa niin tiimityöskentelyä, ideointia, ja prototyypin rakentelua, kuin hauskanpitoa, epämuodollista ajanviettoa, ja vuorovaikutustakin.

Tutkimusaineisto pohjautuu kolmen kuukauden intensiiviseen työskentelyjaksoon Grazissa syksyllä 2013, jolloin tutkija oli mukana toiminnan kehittämässä aktiivisena toimintatutkijana. Työn tulokset on koottu sekä kolmen kuukauden ajan kootuista havainnoista ja kokemuksista, että seuraavana keväänä pidetyistä avoimista teemahaastatteluilta. Tuloksia tukee kirjallisuus kokeilevan oppimisen, käytäntöyhteisöjen, tilasuunnittelun, ja vuorovaikutuksen mahdollistamisen aloilta.

Työ kuvaa, miten kokeilevaa ja kokemuksellista oppimista tukeva työskentely-ympäristö kehitettiin, ja millaisia uudenlaisia toimintatapoja uusi tila mahdollisti ja toi mukanaan. Tämä fyysinen, vuorovaikutteinen ja mentaalinen tila kehitettiin muuntelemalla vanhaa toimistotilaa, osallistamalla käyttäjät tilan kehittämiseen, ja sopimalla tilan säännöt ja toimintatavat. Lisäksi fyysiseen tilaan tuotiin elämää tapahtumilla, jotka luovat mahdollisuuden epämuodollisille keskusteluille ja tutustumiselle. Nämä tapahtumat lisäsivät yhteenkuuluvuuden tunnetta ja tukivat sekä opetushenkilökunnan ja opiskelijoiden, että opiskelijoiden välistä vuorovaikutusta. Design Loftista tuli miellyttävä ympäristö, jossa opiskelijat pystyivät yhdistämään työn ja vapaa-ajan. Toivon mukaan tulokset kykenevät inspiroimaan rohkeita muutosagentteja ympäri maailman kehittämään opetusta parempaan suuntaan ja luomaan uusia tiloja oppimiselle.

Avainsanat Kokemuksellinen oppiminen, Fyysinen tila, Vuorovaikutteinen tila, Mielentila, Toimintatutkimus, Product Innovation Project

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This thesis is made by a business student who has thoroughly fallen in love with the world of interdisciplinary working. Having worked at Aalto Design Factory and been involved in student projects, I have seen and experienced what a group of people, coming from different fields, can accomplish together. This thesis has been an interdisciplinary journey: I have worked mostly among engineers (both in Finland and in Austria), and also took baby steps as a designer when doing visual communications in Graz, and trying to make this thesis also look pretty.

All in all, doing this thesis has been a wonderful experience on a personal level when learning how to work in another country, how to set up a new learning space, how to pass on new ways of working, how to utilize previous experiences in a new environment, and how to make something very practical into a master's thesis. Even one midsummer (juhannus) and one May day (vappu) was dedicated to this project... Naturally, the biggest thanks belong to everyone who helped me through this:

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I was four years old when my mom was doing her master's thesis. One evening I asked her: "Äiti, onko se gradu jotain joka on joskus valmis?" (As in: Mom, is that thesis something that is one day done?)

Yes mom, now I also know the answer. It definitely is something that is finally ready.

In Helsinki, 20.5.2015

Tiina

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1.INTRODUCTION

1.INTRODUCTION

Creating change through the physical space, introducing social, collaborative and interactive ways of working, and challenging the traditional silos and separated offices is nothing new in the organizations and companies of the 21st century. The trends in office design supporting new ways of working started with transformation of working spaces to open offices, proceeded to more collaborative physical spaces, and continued with the trend of co-working spaces, especially in creative fields. High-tech US companies along with creative companies such as IDEO have been leading the way while others have been learning from their experience. Companies have realized that office design has an impact on the organizational culture, interaction, and working in general. Universities and schools have woken up to realize the impact that physical spaces can have on learning and education, and have started to experiment with new classrooms and learning environments.

In the field of education the need for redesigning learning spaces is based on the growing interest to develop experiential and non-theory-based learning, which sets new challenges to the classrooms where learning takes place. Universities are benchmarking creative organizations, companies, and other universities around the globe to find the best elements for new learning spaces. Among others, Aalto University Design Factory has become one of the well-known examples of exceptional learning environments supporting experiential learning.

This thesis is about creating a new learning space that supports experiential learning in Graz University of Technology in Austria. The aim was to develop a flexible, interactive, and fun working environment for the interdisciplinary Product Innovation Project product development course. In this thesis I describe how the foundations for both physical setting and the mindset of the space, were set up in Graz University of Technology for a student-centric learning environment, and how the new learning environment afforded new ways of working. Hopefully this thesis will inspire also other educational institutes, who are looking to redesign and develop their learning environments to better support experiential learning.

Why and how experiential learning?

Today's graduates, regardless of their discipline, need thinking and working skills which help them to tackle complex real-life problems and challenges that cannot be solved with rational and straightforward problem-solving (Dewey, 1938; Laakso & Clavert, 2014). However, such skills as communication and team working are not usually taught during their studies, since the traditional Cartesian approach is based on the idea that knowledge is transferred from the teacher to the student and pedagogy is focused on the best ways to do this (Brown & Adler, 2008; Dewey, 1938; Laakso & Clavert, 2014). In addition, the current way of teaching will not prepare the students for the dynamic and knowledge intensive work life in the 21st century (Brown & Adler, 2008). Hence, there is a need to challenge the traditional power dynamics and learning structures in education, and support creative problem solving and collaboration (Dewey, 1938; Laakso & Clavert, 2014) by emphasizing the holistic learning experience, increasing student-centeredness, and introducing soft skills as a part of the courses' explicit learning objectives.

Since the traditional structures and teaching methods in University education do not support these new requirements in the best way, there is a need to rethink how to develop students' soft skills, creative problem solving capabilities, and co-creation approaches. Obviously introducing new approaches to teaching causes challenges on several levels – from grading systems to teachers' insecurities when stepping out of their comfort zone, and from new classrooms to increased horizontal interaction (Laakso & Clavert, 2014). There is no instruction manual, which describes in practice how to introduce new practices and structures that would support the development of these new skills (Laakso & Clavert, 2014). In addition, as Laakso and Clavert (2014) found out, it is not enough just to introduce a new model or approach to teaching, successful implementation requires true understanding of the value of different disciplines, practical support, and mental orientation.

When students are engaged real-life projects or problems, and thus learning through experience, “they can learn both content and thinking strategies” (Hmelo-Silver, 2004, p. 235). The question, how to support such new learning objectives and styles, led to the need to develop a new physical learning environment for the PIP course. However, as mentioned, no guidebook or manual exists explaining how to proceed step by step. This is why the professor of the PIP course asked for help and guidance from Aalto University Design Factory, where real-life student projects have been carried out in an untraditional learning environment already for years. The following chapters will describe how this new learning environment for the PIP course was set up through stories and observations.

1.1 RESEARCH OBJECTIVES

The thesis attempts to explain and depict what is experiential learning, what kind of spaces support this learning style, how the project was carried out with the help of an external facilitator in TU Graz, and show the value and importance of physical spaces.

The thesis brings up the important topic how creative companies understand creative processes, the importance of soft skills, and collaborative, visual, and interactive ways of working, and how the choices made with the physical space can support this kind of working. There is a lot of practical evidence and business literature on what supports team working, what kind of physical spaces enhance collaboration and interaction, and what kind of culture and spirit encourages open sharing of knowledge, but there is not a lot of academic research about spaces supporting this kind of working in the context of higher education. Hence, in the literature review I have collected research and examples from higher education and universities, from primary schools and their classroom settings, as well as from business context.

Defining the scope

To define the scope, this thesis does not depict an exclusive or perfect picture of learning spaces and practices in them. Instead my aim is to give a good understanding what happened in the case of PIP course, how was the learning environment set up, and why were certain elements and practices in the space and its development considered important. Most certainly the developed learning space is not perfect and there would be a need for further development. In addition, even though I followed all of the student teams throughout the year and was familiar with their design briefs and projects, this thesis will not focus on the substance of the individual projects nor will it concentrate on developing the course structure or general process of the PIP course, or its future strategic possibilities inside the university of TU Graz.

This thesis focuses only on the initial phase of setting up the new learning space, the three first months of the PIP course in the academic year 2013-2014. This means that I will not cover the whole 8-month journey of the projects, or discuss how the learning space has been used after the first three months.

Intended contribution

The purpose of the study is to explain through practical incidents and stories how physical space can support experiential learning, increase interaction and help to set up a new learning culture. I hope that this experience and the findings from the data will give inspiration and practical help for anyone who is looking to develop learning environments or needs justification for redesigning the traditional classrooms. The practical origins and aim of the study might reduce the academic value, and on the other hand, the academic format that I'm obligated to

follow might limit the practical usability of the thesis. However, I'm certain that there are change agents and enthusiastic people who will my findings and practical implications valuable and useful.

As a conclusion, with this thesis I hope not only to document the development process of the new learning space in TU Graz, but also the support the setting up of new student-centric learning environments around the globe, especially the Design Factories in the Design Factory Global Network (DFGN) whenever there is a need to support experiential learning culture, create new ways of working, and challenge the status quo. I hope that my analysis of the happenings in TU Graz could give some direction and advise how to start the development process towards student-centric culture, and how to avoid the biggest challenges on the way.

Design Factory Global Network (DFGN) is a network of six universities and one research center (altogether 10 by the end of 2015) who share the same philosophy and principles. These institutions provide familiar DF-environment for their local community and their goal is to be the leader in international university collaboration beyond academic boundaries. (Tuulos & Mansikka-Aho, 2015)

Research questions

With these goals and objectives in mind, I intend to answer to these research questions:

RQ1: How was the new physical, social, and mental learning environment supporting experiential learning set up for the PIP course, and what was the role of the space?

RQ2: What kind of new ways of working did the physical space afford and bring with it?

1.2 STRUCTURE

As figure 1 depicts, after this introduction I will present how literature defines experiential learning, new learning spaces which challenge the traditional classrooms, elements physical spaces that afford interaction, and finally attitudes and rules in spaces. After the literature review I will describe the research setting more in detail: describe what Aalto Design Factory is, and what was the situation in TU Graz when the development project started. In the fourth chapter I will introduce methods, which were used to conduct this thesis. The fifth chapter presents the interesting findings of this study based on the interviews and observations. These practical examples and quotes will elaborate on the previously presented theories about spaces, and more precisely about experiential learning spaces. The sixth chapter presents key findings and discusses how literature and the findings support each other. This chapter will sum up the main focus of this thesis.

The seventh chapter briefly brings up a new topic, the role of the action researcher in the researched organization. This role of a process promotor and coordinator came up strongly in the observations and interviews, and hence could not be ignored. The final words will discuss what could have been done differently, what would be interesting to study in the future, and what is the bigger impact of this study.

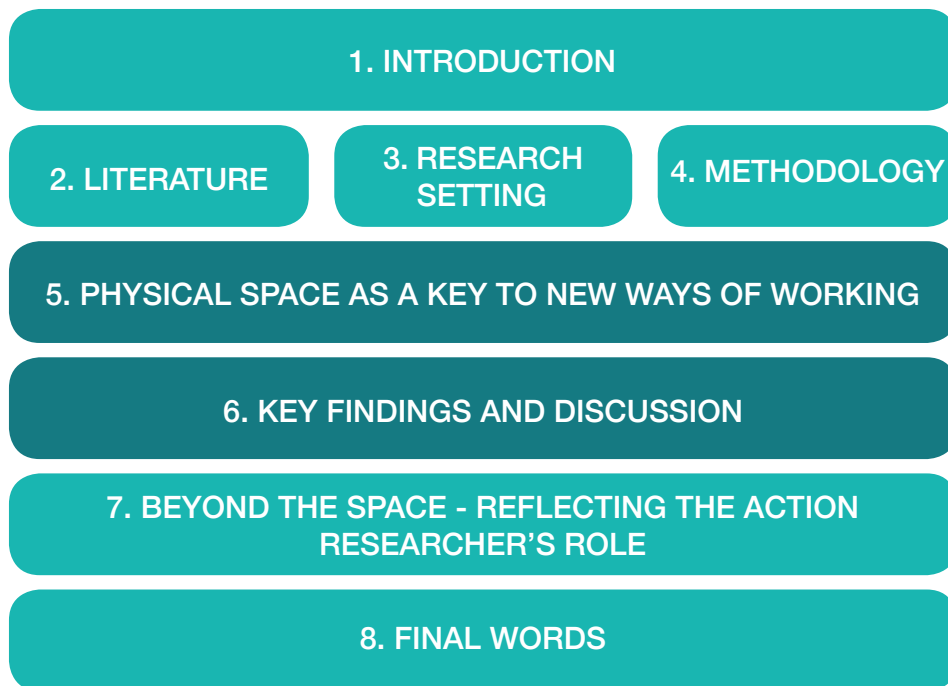


Figure 1: Thesis structure

To maintain the anonymity of the actors in this study, I will use the persona pronoun “she” throughout the thesis, when describing the activities that took place and talking about the actors involved in this process.

2. LITERATURE

2. LITERATURE

One could read a lot about workspace design, creative environments, and supporting interaction in organizations. There are several consulting companies advising traditional organizations on how to change their office layout into creative, collaborative, and flexible working environments. Co-working spaces are more and more common, and the perception of the workplace has changed dramatically in the business world. The Google office has been the trendsetter on everyone's lips and as an example, Microsoft has transformed their own office space design project into a broader concept presenting new ways of working and new working spaces to anyone interested (Das Neue Arbeiten) in their headquarters in Vienna.

There is research about the interaction patterns in the space (Backhouse & Drew, 1992), a lot of do's and don't's in business literature for managers about designing a creative and inspiring place (Becker & Steele, 1994; Doorley & Witthoft, 2012; Kelley & Littman, 2001), and pioneering findings by Allen (1977) about the relationship between communications paths and physical layout of the space. Gibson (1977) has talked about visual perception and theory of affordances, which Fayard and Weeks (2007) skillfully transformed into design drivers when designing an interactive space and understanding what the space affords with the elements of privacy, propinquity, and social designation.

Many articles explain the requirements for new teaching and learning spaces through cases and examples of unconventional or alternative learning facilities aiming at enhancing learning. Many experiments and projects to alter learning spaces arise from kindergartens or primary schools (Weinstein, 1981; Wilson, 2001), which together with advanced technological solutions and a focus on a student-centered approach have inspired also the higher education to redesign and even replace traditional classrooms (Blackett & Stanfield, 1994). What can be extracted from all of the journal publications, reports, and manifestations is that physical space does make a difference, and classrooms are not neutral settings – instead they have a huge impact on the way we teach and learn (Dittoe, 2002; Van Note Chism & Bickford, 2002; Weinstein, 1981).

However, the academic literature explicitly about innovative and creative classrooms and learning environments supporting experiential learning is not excessive (Dittoe, 2002; Van Note Chism, 2002) and the importance of classroom design wasn't even a topic before the 80's (Weinstein, 1981). Since then, there has been a growing interest to understand how physical spaces influence teaching and learning, but still this understanding has not spread broadly to practice (Weinstein, 1981). Hence, this thesis tries to depict how a new learning environment was developed with the help of different design drivers and principles from literature. This

literature review consists of different elements and building blocks of such a learning environment: spatial solutions affording both teamwork and privacy, spaces encouraging to create new ideas, and ways of working to support informal discussions.

In this thesis, space is the main focus. With space I mean a physical, concrete space, that has activities in it, and that can afford many things. Thus, if a space affords something, it is more of a mental perception of the space, its rules, and ways of working. This is why I will also describe attitudes and tacit features when talking about space. I will use the term learning environment to refer to the whole, both the physical, social, and mental aspects of the space where learning takes place.

2.1 WHAT IS EXPERIENTIAL LEARNING, A BRIEF OVERVIEW

The theorist John Dewey (1938) described in his hugely cited book ‘Experience and Education’ the need to transform and challenge traditional education with the new and progressive approach that emphasizes experiences in learning, and education as a social process where experiences develop through interaction (see also Kolb & Kolb, 2005). He argues that as in the traditional model knowledge is passed on to the class of students through the teachers, the progressive model brings the teacher closer to the students, to the same group of learners, acting not like a boss, but instead as a facilitator and group leader in the discussions. The rules and information is not just poured from the teacher to the students, but the community creates the social conduct and reflects their learning through the external and internal experiences (Dewey, 1938). It is not so much about what we learn, but how we are learning (Brown & Adler, 2008). As Dewey concludes, the new education gives more freedom to the learner to articulate and reflect their experiences, in contrast to giving strict rules and a formal classroom setting which puts the learners into straightjackets (Dewey, 1938).

This new approach, with its collaborative sharing, teacher’s role as a group leader and facilitator rather than knowledge agent, and emphasis of both extrinsic and intrinsic experiences, challenges not only the organizational structures and curriculums, but also the physical and mental settings where experiencing happens. Dewey (1938) acknowledges that the students are experiencing also in the traditional classrooms, but their experiencing might not have been the right kind, at least not increasing their curiosity and hunger for learning. Learning attitudes, preferences, likes and dislikes is much more valuable than e.g. learning specific technical knowledge, since those attitudes are the driving forces for the future (Dewey, 1938). Feeling and thinking, and especially moving back and forth and reflecting is something that drives learning forward (Kolb & Kolb, 2005). And hence, the best attitude to learn is the desire to learn (Dewey, 1938).

However, the new approach is more difficult than the traditional one, since the experiential learning demands the teacher to become integrated with her student group and to get ac-

quainted with them in order to use that as a resource in her teaching (Dewey, 1938). Most importantly, in experiential learning the learning is holistic and the whole process is more important than the outcomes (Kolb & Kolb, 2005). In order to develop education and improve learning, educators should pay attention on the process that students are engaged in (Kolb & Kolb, 2005).

2.2 PHYSICAL SPACES AND BUILT ENVIRONMENTS IN LEARNING

*“Space is the ‘body language’ of an organization”
- Chris Flink, Partner at IDEO (Doorley & Witthoft, 2012, p. 38)*

Physical spaces and built environments have received increasing interest and attention since both researchers and practitioners have realized how physical space is not just a passive place hosting various activities, but instead its layout and setting is in a central role in creating interaction between the users of the space (Backhouse & Drew, 1992; Allen, 1977). In Cresswell's (2004, p. 39) words “Place is the raw material for the creative production of identity rather than an a priori label of identity. Place provides the conditions of possibility for creative social practice.” And as Chris Flink continues: “Intentional or not, the form, functionality, and finish of a space reflect the culture, behaviors, and priorities of the people within it. This suggests that a space designer is simultaneously a cultural translator and a builder. That said, space design has its own grammar that can be tweaked to bolster desirable habits” (Doorley & Witthoft, 2012). Thus, it is difficult to separate physical space from the social or mental, since places are formed by people and the meanings we give to places, places are always in process (Cresswell, 2004) and the physical setting influences how we understand the space. All the physical decisions in the space are then connected to a tacit metalevel and the mindset of the space.

Learning spaces are not necessarily only “physical places but constructs of the person's experience in the social environment” (Kolb & Kolb, 2005, p. 200). The social environment forms a community of practice (Wenger, 1998) where knowledge, norms and traditions are shared (Kolb & Kolb, 2005). “Learning is thus a process of becoming a member of a community of practice through legitimate peripheral participation” (Kolb & Kolb, 2005, p. 200). According to the situated learning theory (Lave & Wenger, 1991) social or informal learning happens beyond the teacher and the classroom when people share experiences both in direct experiences and interactions with others, participate to activities around real-life problems, mentors help novices to become experts, and when learning is reproduced from the more experienced to the newcomers (Bickford & Wright, 2006; Brown & Adler, 2008; Kolb & Kolb, 2005; Laakso & Clavert, 2014). Physical spaces act as a medium enabling informal gatherings and encounters to happen (Laakso & Clavert, 2014) as spaces can afford a place to be, a place to meet and a place to learn from others (Brown & Adler, 2008).

In this chapter I will talk more about learning spaces, the many aspects of spaces e.g. as carriers

of different meanings and enablers of certain behavior, as well as more generally about physical spaces which support interaction.

Spaces for experiential learning

“Curricula can inspire good architecture, but good architecture can also inspire a new understanding of teaching.” (Vaughan, 1991, p. 12)

Experiential learning is a term that describes learning, which is not theory-based, teacher-centered, or an individual’s sole endeavor. Experiential learning challenges traditional views not only in perceptions of teaching and learning, but also of interactions taking place, hierarchy, attitudes, and physical spaces. Experiential learning is holistic and it happens everywhere (Dewey, 1938) – not just in a classroom designated for teaching.

Creating a learning environment is not just about brick and mortar, building walls and ceilings. It is more challenging and versatile than that, since it is also about creating such a feeling and an ambiance that enhances deep learning. Dittoe (2002, p. 81) defines that it is essential to “bring the built environment and the educational environment into a harmonious learning relationship” and it is challenging since “very little has yet been tried, assessed, and understood regarding what architectural response best fits the learning paradigm” (Dittoe, 2002). Currently many classrooms both in schools and universities support group work poorly and physical spaces are taken for granted, and though that nothing can be changed (Graetz & Goliber, 2002). Physical space plays a significant role in shaping human social interaction and supporting collaboration, and it should be acknowledged that experiential and meaningful learning can not just occur anywhere (Graetz & Goliber, 2002).

As a conclusion, physical space is an integral component of all activities taking place in it (Backhouse & Drew, 1992), which is why it should also be considered when developing experiential education. If there is a desire to enhance and support learning, the transformation of the traditional classrooms should be taken to the agenda as a first priority (Van Note Chism & Bickford, 2002) and redesigned in such a way that they support the desired learning (Dittoe, 2002; Graetz & Goliber, 2002; Weinstein, 1981). In order to be more innovative, both in business and education, we have to have a “blend of methodologies, work practices, culture, and infrastructure” (Kelley & Littman, 2001, p. 5).

‘Learning spaces’ enhancing experiential learning

Among others, Kolb and Kolb (2005) have researched how to support and enhance experiential learning. Their definition and focus on learning spaces is more on a mental level – with learning spaces they describe the connection between students’ learning styles and the environments institutions provide (Kolb & Kolb, 2005), but their ideas about the space can be also well applied to form requirements for physical spaces which support experiential learning.

Kolb and Kolb (2005, emphasis added) have defined nine learning spaces that are vital in enhancing the experiential learning:

1. **Respect for learners and their experiences**
2. Begin learning with the learner's experience of the subject matter
3. **Creating and holding a hospitable space for learning**
4. **Making space for conversational learning**
5. Making space for development of expertise
6. Making spaces for acting and reflecting
7. **Making spaces for feeling and thinking**
8. Making space for inside-out-learning
9. Making space for learners to take charge of their own learning

In this study I will focus on in the first, third, fourth, and the seventh learning space, and discuss about them more in detail, especially from the perspective of physical spaces:

The 'respect for learners and their experience' is vital since in order to embrace the experiences people have to be able to feel safe and respected as a part of the learning community (Kolb & Kolb, 2005). In an environment 'where nobody knows your name', where learners feel alone, it is more important to create a supportive environment for learning (Kolb & Kolb, 2005). Everyone remembers the first day at school where you had to pick your place from the row of chairs and the back row got always filled first. With physical elements and setting in the space we can also influence attitudes, the feeling of belonging and togetherness (Weinstein, 1981). This finding also has implications on the student-centeredness in experiential learning, where the teacher has an important role when making sure everyone feels that they are a part of the group.

'Creating and holding a hospitable space for learning' means that learners must embrace differences in their knowledge level, beliefs, and experience (Kolb & Kolb, 2005). Here the physical space can support by creating interactions and increasing communications between the people in a safe and supportive environment (Kolb & Kolb, 2005; Weinstein, 1981) so that the students can for example learn from their peers' or teachers' experiences. This kind of sharing from experts to novices is an integrated part of the learning structure in experiential learning. Tightly connected to this is also the need to 'make space for conversational learning'. We learn when interacting with each other, but actually a traditional classroom setting might discourage students engaging in a genuine conversation, while in reality the most valuable and significant conversations are held spontaneously after the classes (Kolb & Kolb, 2005). Hence, it is important to create such learning environments where students are more engaged with the teachers and each other (Wilson, 2001), an informal environment, which affords these conversations with the teacher already during class.

Last but not least the 'spaces for feeling and thinking' are focused on creating an environment

where it is allowed to safely feel and have emotions (Kolb & Kolb, 2005). Fear, among other negative emotions, can block learning, “while positive feelings of attraction and interest may be essential for learning” (Kolb & Kolb, 2005, p. 208). In building this intrinsic motivation and positive feelings, the project or challenge plays certainly a significant role, but certainly attractive physical spaces can increase positive emotions.

Requirements for the new physical space

“Working in a place that ‘fits’ should certainly enhance student satisfaction and, perhaps, even performance.” (Weinstein, 1981, p. 18)

Excellence of university is not just based on the people and quality of research, but also “on the quality of the physical environment” which influences accidental encounters, interdisciplinary interaction, learning culture and ways of working (Vaughan, 1991, p. 12). The growing need for “active engagement, social interaction, and physical comfort in learning situations is well supported by the evidence from researchers in many disciplines.” (Van Note Chism & Bickford, 2002, p. 91). Spaces can support or inhibit learning, and it is easier to say what is wrong with many classrooms than to define a well designed learning space that enables good teaching and make sure that learning happens both inside and outside of the classroom (Vaughan, 1991; Weinstein, 1981). However, it is not that easy to define what makes a good classroom (Vaughan, 1991).

Originally from a joint report done by several education organizations in the USA (AAHE, 1998) Van Note Chism (2002) summarizes their ten key principles concerning education based on the new theories about learning. For this thesis, the most interesting of those ten are the following six claims, that learning:

- is developmental and involves the whole person,
- is done by individuals within a social context,
- is affected by the educational climate ,
- requires frequent feedback,
- takes place informally and incidentally, and
- is grounded in particular contexts and individual experiences. (Van Note Chism, 2002).

The perspective of developmental and holistic learning, which emphasizes individual’s experiences matches with Kolb and Kolb’s (2005) and Dewey’s (1938) ideas about progressive and experiential learning. In addition, the focus on individuals in a social context, importance of educational climate, demand for frequent feedback and the informal nature of learning resonate with Wenger’s (1998) ideas on communities of practice, and also give a reason to develop such physical learning environments, which are dynamic and not just tied to one certain room (Van Note Chism, 2002), and where people can interact informally and effortlessly with each other.

If experiential learning shifts the focus away from the teacher, focuses on learning through holistic experiences and demands for increased interaction, the physical spaces have to support these elements. These new spaces have to afford experiments both in physical and mental terms – new teaching evaluations should be introduced in order to favour experimentation and there should be new possibilities for both faculty and students to share their learnings (Van Note Chism & Bickford, 2002). It all starts from understanding how learning happens, and how communication is influenced by attitudes, artefacts, and elements in the physical space (Van Note Chism & Bickford, 2002), and what kind of teaching and learning occurs in a certain space (Weinstein, 1981).

There are different definitions and names for new learning environments. Wilson (2001) has developed a concept of a ‘studio classroom’, Weinstein (1981) refers to two projects about ‘alternative learning facility’ and ‘soft classrooms’, and Niemeyer (2003) uses the term ‘smart classrooms’, where users needs are taken into account and all resources are easily available for teaching and learning. The key problem with traditional classrooms is their inflexibility, teacher-centred layout (Dittoe, 2002), and in general, common ignorance on the effects and possibilities of physical space (Graetz & Goliber, 2002).

Weinstein (1981) has listed four premises how physical setting should support teaching. First, “the classroom setting facilitates certain behaviors and hinders others”, meaning that the space can directly or symbolically either disturb or support learning. Second, when thinking about learning environments it is also important to take into account how the students perceive the environment – there are social and psychological elements that cannot be ignored. Third, it is impossible to design a ‘one size, fits all’ –solution with learning spaces, classrooms must be designed together with the objectives, learning styles and the teaching methods. Fourth, it should be acknowledged that the physical setting plays a big role and it should be planned as carefully as other elements in teaching. (Weinstein, 1981, p. 12). In addition the spaces should enable and support interaction, have technology that is easy to use and clearly support the learning goals (Blackett & Stanfield, 1994; Van Note Chism & Bickford, 2002; Weinstein, 1981).

Flexibility is key

Flexibility is the key requirement for physical learning spaces, and it is mentioned as an important factor in all of the literature somehow touching upon supporting experiential learning (Blackett & Stanfield, 1994; Dittoe, 2002; Niemeyer, 2003; Van Note Chism & Bickford, 2002). Flexibility affords multiple purposes for one room or space, it gives space for creativity and new ways of working (Dittoe, 2002), and with flexibility different work tasks can be supported, whether there is a need to organize a workshop, a team meeting or work in privacy. In general when designing a classroom it should serve several purposes and be adaptable for various teaching methods in different disciplines (Blackett & Stanfield, 1994; Niemeyer, 2003).

However, physical spaces have an integrated social aspect; they are always unfinished

(Cresswell, 2004). If a certain classroom doesn't support the wanted teaching methods, the setting is often ignored and the space rearranged if possible, to better support the teaching (Cresswell, 2004). For example, a teacher might arrange the chairs in a traditional classroom from rows into a big circle, which makes discussions among the class easier (Cresswell, 2004; Graetz & Goliber, 2002; Weinstein, 1981). When this habit tends to repeat itself, more and more university classrooms might be built with more flexibility and moveable furniture (Cresswell, 2004). As Cresswell (2004, p. 37) defines: "the university as a place, then, is not complete. In general places are never complete, finished or bounded but are always becoming – in process".

On a very concrete level, Van Note Chism (2002, p. 10) describes how this new way of teaching and facilitating learning requires "small-group meeting spaces, project spaces, spaces for whole-class dialogue where the students as well as the teacher can be seen and heard, spaces where technology can be accessed easily, spaces for display of ideas and working documents, and spaces that can accommodate movement and noise" in addition to "spaces that include possibilities for food and Internet access." Such spaces require also new ergonomics and emphasis on comfort and aesthetics, which influence performance (Van Note Chism, 2002). Not only ergonomic comfort but also comfort is important in terms of lightning, acoustics, warmth and fresh air is important to support learning (Niemeyer, 2003). Classroom furniture manufacturers have also realized the shift towards experiential learning and new power dynamics between teachers and students, and have designed new product lines taking these new relationships and requirements into account (Van Note Chism, 2002). These learning environments are unlikely to resemble traditional academic classrooms, instead the emphasis is on learning constantly and everywhere, supported by the physical environment (Dewey, 1938; Van Note Chism, 2002).

Designing learning environments for and with users

"We participate, therefore we are" (Brown & Adler, 2008, p. 18)

In classroom design it has been less traditional that the users (students and teachers) are involved in the design process (Van Note Chism & Bickford, 2002; Van Note Chism, 2002), even though they are the stakeholders who are most aware of the challenges and limitations in a traditional classroom (Bickford, 2002). Instead they take the spaces for granted and do not demand for improvements, regardless how unsatisfactory for the teaching purposes those spaces are (Van Note Chism, 2002). The students and the teachers would be the key stakeholders to come up with new ideas and experiment with the new possibilities, and by not involving them important potential is wasted (Bickford, 2002).

Nevertheless, when creating new classrooms the students and teachers are not the only stakeholders of the space. It is important to realize that there are also other people who affect the creation of the new learning space, and it should be acknowledged what the new space requires from them, e.g. the facilities' managers in the university, the service staff, and people maintain-

ing the space, and involve them to the design process (Bickford, 2002). Different stakeholders have different needs and wishes, traditions, practices and norms, and they speak different languages when coming from different disciplines (Bickford, 2002). Creating a new learning environment is a balancing act between all these stakeholders and an opportunity to harness and utilize the differences to a positive end result.

Spaces carry symbolic meaning

“Places are not just soil and plants, they are also cultural” (Cresswell, 2004)

Tiles, bricks, and wood are common building materials, and many of our spaces are built from these neutral materials. However, despite the neutrality of the materials, for example universities “carry within themselves implicit ideological assumptions which are literally structured into the architecture itself” (Hebdige, 1979, p. 12). Different schools and faculties in different buildings, faculty’s offices somewhere far away from students’ learning areas, and different floors or corridors assigned for certain subjects show how rules and meanings are tied to the physical space (Cresswell, 2004; Hebdige, 1979). In addition, traditionally the teacher stands on a podium in front of the students and thus the distance and hierarchical relationship between students and teachers is injected into the spatial design and seating arrangements (Cresswell, 2004; Hebdige, 1979). These spatial decisions, whether made consciously or unconsciously, have been set well before even knowing what kind of activities are going to be built inside and what kind of interaction should the space enable (Hebdige, 1979).

Different meanings in spaces do not just appear from thin air – the role of an individual is important, since each individual attaches meanings to ways of working and hence influences the work itself. With time, institutions can be re-transformed, when actors in the space socialize with each other, adapt certain behaviors and assign meanings to the space. “In other words, institutions are embodied in a dialectical interplay between three components: actions (practices and structures), meanings, and actors” (Zilber, 2002, p. 235).

However, these meanings and patterns of working are not easy to change or facilitate. The educational practices, and meanings for faculties, institutions and disciplines have been formed in universities in over hundreds of years and the hierarchical structures and authority has been built to the system through space. (Cresswell, 2004). And this phenomena is not just an old one, it is still visible and present in several universities and educational institutes around the globe. The risen focus on student-centeredness and the change in faculty- and teacher-student relationship has however challenged this traditional view and caused the interest towards new spatial solutions.

Spaces however do not carry just such a weight and negative meaning. Especially the new and progressive learning spaces carry marketing aspects and symbolic value within the university (Van Note Chism & Bickford, 2002). Well designed functional and comfortable learning space

that has been designed together with the users tells to everyone how the university is valuing high-quality learning and teaching, and ready to invest resources into developing it (Van Note Chism & Bickford, 2002). However, the driving force to designing a new learning environment should not be the image and positive symbolic value that it brings within. Instead, the aim should be to think what are the activities that the space should enable and support, and embrace the results that the space causes to behavior and ways of working (Becker & Steele, 1994).

Structures create barriers for the use of ‘new’ space

Spaces carry meanings such as the distance between a teacher and a student, and the behavior suitable for classrooms, which have been developed into academic institutions, can be challenged with the development of the new learning environments. However, there are several challenges, since the hierarchical structures which maintain the status quo, are based on the traditional model of teaching and learning (Bickford, 2002). Many academics, after achieving a certain status and position in the university, see themselves as experts positioned above others, and do not have equal conversations with their students (Bickford, 2002). Just like status and position in companies have traditionally been showed off with bigger offices and better views (Becker & Steele, 1994). This hierarchical structure and traditional status quos need to be abandoned in order to afford new and genuine interaction (Bickford, 2002) and student-centric culture.

However, even if there were understanding and desire to break these traditional barriers for vertical communication, the individuals might not still be encouraged to pursue this new way of teaching and interacting. The metrics and reward systems in universities define what is valuable and where resources should be allocated (Bickford, 2002). “People are unlikely to change their behavior or decision-making rules if their reward systems continue to reinforce the old behavior and rules. Expecting faculty to enthusiastically embrace their new charge as co-creators of learning spaces, without accounting for the added time and responsibility this will generate, is at best naive – and at worst, dangerous. They will need administrator support and recognition that the time they invest in the process will create results and that their efforts will be rewarded.” (Bickford, 2002, p. 50).

2.3 SPACE FACILITATING AND ENABLING INTERACTIONS

“Were community not important for learning, colleges and universities would have little reason to exist – people could learn efficiently by reading and interacting with tutors.” (Bickford & Wright, 2006)

In addition to having flexible furniture in the space to afford changes in the spatial layout before or during class or workshop if necessary, small details in a physical space can make interaction and team working easier. When describing the physical elements in a good learning

space, Niemeyer (2003) goes very much into detail, which is not the focus in this thesis, but one of his core ideas is to afford visual presentation and interaction with whiteboards, chalkboards, flipcharts, and technical devices, such as projectors. As it will be described later, the physical objects are not mundane or neutral in a learning environment; they work as a medium to afford interaction especially in a visual form, which again supports communication.

Paths for interaction in spatial layout

“Good design is about meeting people. It’s about opening doors”.
(Kelley & Littman, 2001, p. 182)

Allen (1977) talks about the importance of physical space: How it can enable and afford accidental encounters by paying attention to the office planning and design, spatial design and layout. For example he found out that 30m is such a distance which still carries communication within, but if project groups or people are further away from each other, interaction will not take place (Allen, 1977). On a more tacit level Gibson (1977, 1986) talks about affordances in spaces and in our environment. Well-designed environment communicates already to the visitor and user of the space what it affords – whether it is comfort, fun, rules, openness or something else. Affordances are everywhere and all around us, a deep plate affords enjoying soup from it and a handle on the door instructs us to whether to push or pull the door (Fayard & Weeks, 2007; Gibson, 1977; Kelley & Littman, 2001). Kelley and Littman (2001, p. 182) describe affordances as “handshakes, visual clues that make you feel more comfortable.”

Fayard and Weeks (2007) have applied the theory of affordances from Gibson (1986) to form guidelines for spatial design. For example, glass walls in a meeting room makes it easy for others to see if a person they were looking for is currently in a meeting and should not be disturbed, or they can just wave or communicate nonverbally with the people inside without disturbing the meeting (Fayard & Weeks, 2007). Curtains, walls and other elements creating a sense of privacy are important in an open space so that people feel free to share their ideas, talk openly with each other and not to talk when they choose so (Fayard & Weeks, 2007). These opportunities for eye contact and nonverbal communication influence the communication patterns, cooperation and social interactions (Weinstein, 1981).

Hence, to support both verbal and nonverbal, explicit and implicit communications, it is important to create spaces that have a balance with privacy and proximity. Water coolers, copy machines, cafeterias, and other magnet spaces or social areas are enabling proximity, which when bringing people together, usually result into casual interactions and accidental, change or unplanned encounters (Fayard & Weeks, 2007). These casual interactions build trust, cooperation and innovation (Fayard & Weeks, 2011), not to mention strengthen the community and feed positively into organizational culture (Wenger, 1998).

However, it is important to observe and realize what kind of influence altering the physical

working environment has. Sometimes the valuable communication patterns and networks are not official or explicit, and valuable connections might be lost when making changes to the space or moving people around (Leonard & Sensiper, 1998; Weinstein, 1981; Wenger, 1998). As an example, one company planned to give employees more privacy in their open office by making the movable walls between work stations higher but when doing that they would have disturbed the way employees shared valuable information and communicated, since at that time the walls were low enough for the employees to talk with each just by lifting their heads and talking over the walls (Leonard & Sensiper, 1998). Such small but meaningful things might be ignored unless it is understood how spatial solutions can influence interaction and forming of communities and organizational culture (Leonard & Sensiper, 1998).

For experimental learning it is interesting to think how not only the spatial design enhances learning but all the affordances in the space, including mental space, which sets the tone and feeling of the environment. At its best, a good learning space encourages and affords everyone to share thoughts, visualize their ideas, communicate, feel and think.

Socially active magnet spaces

“A firm should create opportunities for those people who show an enthusiastic interest in a certain technological or market-specific segment to meet, to become acquainted, to evaluate and appreciate one another. We are thus putting in a plea for meeting places, for informal opportunities for communication, for regular, institutionalized, open and non-hierarchical meetings.” (Hauschildt, 2003, p. 810)

In all offices and buildings there are integrated spaces such as stairways, corridors, escalators, and aisles that lead to many other places in the building. Some of these places are routes to important locations, such as coffee machines, toilets, copy machine, or to an office of a key person in the organization. Such places become the ‘interactional hotspots’ or magnet spaces as they encourage movement and are central for enabling accidental encounters and unplanned discussions (Backhouse & Drew, 1992; Becker & Steele, 1994; Kelley & Littman, 2001). Magnet spaces are spaces, which enable many actions, which is why several people have a reason to come to that space. (Backhouse & Drew, 1992; Becker & Steele, 1994; Kelley & Littman, 2001; Kornberger & Clegg, 2004).

When facilitating interaction, it is good to identify these hotspots, which are places where many people have a reason to come or walk pass during the day. Magnet spaces afford serendipitous conversations (Becker & Steele, 1994) and increase the opportunity for interaction. As Backhouse and Drew (1992) found in their study about interaction patterns in a workplace, many consultations and discussions were not planned ahead nor conducted with the person who they would have assumed. Instead the consultations were caused by accidental encounter, which was triggered by the space (Backhouse & Drew, 1992).

In addition to corridors, food and drinks are great magnets that brings people together (Becker & Steele, 1994). Getting a cup of coffee, having some breakfast in the kitchen, or grabbing a snack all afford informal interaction and an important break during the day (Becker & Steele, 1994). If the space is designed well, people can also do ‘real work’ while taking a break, getting into different conversations and vary their working position, for example when standing by a raised coffee style table (Becker & Steele, 1994). Hence, food can make working more efficient and bring people into important unplanned conversations.

Invitations for interaction

Workspace is not just a place where collaboration occurs, it is in the core of making the collaboration happen and can also influence on the interaction patterns in the organization (Allen, 1977; Backhouse & Drew, 1992; Becker & Steele, 1994). That is why it is not trivial how offices and project teams in organization are located – should people be clustered based on their discipline when the expertise is concentrated, or based on their current project, when they can utilize the interdisciplinary knowledge base and share the status of the project is more effortlessly (Allen, 1977; Backhouse & Drew, 1992). Having the project team in the same work space will increase “the interdisciplinary nature of the whole organization”, and increase the interdisciplinary cohesion of the team, since all of the team members are locally present (Backhouse & Drew, 1992).

Backhouse and Drew (1992) also found in their study about office spaces and interaction that when people leave their workstations for whatever reason, e.g. for getting coffee, going to the toilet or to the copy room, searching for a pen, they become ‘available for communications’ in the eyes of other people. Hence, movement in physical space was understood as being available for discussion – people do not necessarily go and disturb someone while they are working on their desk, but immediately as they move, they become open for interaction. In addition, it is valuable to have people with different backgrounds and disciplines available, since Backhouse and Drew (1992) discovered how people do not consult other only based on their professional status and position, but also based on their historical knowledge and experience.

Open door – an invitation to walk in

Just as Backhouse and Drew (1992) found that people were engaged to conversations more frequently when they were moving from their desks, an open door in an office can be interpreted has an invitation to interact and approach. For ages space has been a status symbol and it has been used to articulate position in a company (Becker & Steele, 1994; Kelley & Littman, 2001). However, to increase collaboration and interaction, many executives and CEOs are not anymore invading the biggest offices with the best view and closed doors. Instead, in many offices the big wooden doors are replaced with glass and doors are kept open to increase the flow of interaction, influence in community feeling and support flat-hierarchy (Becker & Steele, 1994; Kelley & Littman, 2001).

The open door, or a glass door that has replaced a wooden door, can be again interpreted in Gibson's (1986) terms to afford others to see who is or is not in the room, or can the room be entered and the person disturbed. In addition, a glass door can afford accidental and unplanned encounters as the person in the room also has an opportunity to see what is happening outside, and for example interact with someone passing by her office (Fayard & Weeks, 2007). In his research of communities of practice Wenger (1998) also showed how this kind of physical settings, positions, and solutions might enable unplanned informal communications and communities to evolve. Such new practices give an opportunity for new commonly agreed rules to emerge – for example it could be agreed that if someone is wearing headphones in an open office they want to concentrate and should not be disturbed, or one certain area can be designated only for silent and private work.

2.4 MENTAL SPACE

“As leaders, we play a crucial role in selecting the melody, setting the tempo, establishing the key, and inviting the players. But that is all we can do. The music comes from something we cannot direct, from a unified whole created among the players - a relational holism that transcends separateness. In the end, when it works, we sit back, amazed and grateful.”

- Margaret J. Wheatley, from Leadership and the New Science (1992)

This quote from Margaret Wheatley describes beautifully how we can design a physical space, and bring certain furniture and objects inside. However, as soon as we bring the users inside we cannot manage the meanings that are formed or the interactions that start to evolve. We can try to facilitate the spirit of the space beforehand with the ways of working and elements we bring to the space, but it is the people who give finally the meanings and create the life inside. In addition the environment doesn't just enable certain behavior to occur with its functions and elements, it also “reinforces the values guiding these behaviors through the silent language of environmental cues” (Becker & Steele, 1994, p. 39).

In his article Vaughan (1991) describes his experience of this non-manageable spirit where together with the students they were able to create a wonderful tight community where sharing on knowledge occurred and students learned from experts. However, from outside it was impossible to observe this value and vividness, and quantifiable measures weren't sufficient to justify the need for those rooms, so they had to move their teaching activities to other location (Vaughan, 1991). It is valuable for experiential learning to create such an environment where teachers, students and other experts in the field work closely with each other and a culture of openness, trust and sharing can be established (Vaughan, 1991).

When talking about spaces supporting experiential learning it is important to also acknowledge the positive or negative attitudes that the students and teachers might have towards the physical classroom. “As students enter a classroom, they form an impression of that space and experience an associated emotional response” (Graetz & Goliber, 2002, p. 15). This impression

is caused by the previously mentioned affordances in space, which arises from Gibson's (1977, 1986) research on environmental affordances and is applied and elaborated to guide the design of physical spaces among others by Fayard and Weeks (2007). As the learning space gets a positive symbolic meaning and as it is respected both by the students and the faculty, it will facilitate and support better learning. Thus, as students are given this professional space it has an impact on their motivation and attitude as they can see the value and importance the university is communicating.

There is so much more going inside a physical space than just what we explicitly see. In this chapter I will explain some of the tacit and implicit features, i.e. the mindset, in the world of spaces.

Rules pervade space

Just like games, situations also have rules. If you are playing chess and changing to Monopoly, you cannot keep playing it with the same rules, and on the other hand, if you do not have rules, you do not have a game. The same applies to situations and places – different rules apply in different situations and places and more generally, all elements in a situation, where individuals are actively participating and involved control individual's behavior (Dewey, 1938). As a conclusion, in the new spaces the social control and rules are defined as a collaborative action, where all individuals are responsible of the outcome (Dewey, 1938).

There are several rules all around us which we have learned or which are communicated explicitly with signs and signals (Cresswell, 2004). For example, we should not drive towards a red traffic light, we should not talk loudly in a library, or we should not stand or walk on the wrong side of stairs and escalators causing jam in the people flow. As humans we tend to give meanings for places and also define what is appropriate in a certain place and what is not, who belongs to the place, and what are the ways of working that are 'in place' (Cresswell, 2004). Usually it is the more powerful or superior people who define these norms on how people should behave or understand the space (Cresswell, 2004).

There are several cultural and social expectations that usually are connected to a space – both mental and physical (Cresswell, 2004). "We are supposed to be at work by nine o'clock...We should not talk loudly to ourselves in public. Women and discouraged from walking alone down dark alleys at night... All of these structures vary from place to place and when we travel we are expected to familiarize ourselves with them" (Cresswell, 2004, p. 35-36). In addition to different cultural norms and rules in different countries, there are specific rules inside different organizations. For example in one Finnish law firm you are allowed to dress informally when coming to work if you do not enter the client meeting space. However, as soon as you have a meeting with a client and should be representing your company, you should suit up. Hence, people create meanings and rules in spaces, and practices in a certain place are not fixed – places aren't born with certain natural and obvious meanings (Cresswell, 2004) but instead the

meanings and rules are created in a social context.

We know how to behave when going to the doctor: we sign up by the registration and go and wait in the waiting room area until our name is called to see the doctor. But what if when entering the hospital you do not see any registration, or a waiting room area. What if the whole place is just a big living room, where patients can find a comfortable seat and wait that the doctors come to them? This is just a hypothetical idea, but just as an exercise it shows how confused and 'out-of-place' we might be in a situation like this. Being out-of-place means that the actor is acting against the code of conduct and "not matching the expected relations between place, meanings and practice" (Cresswell, 2004, p. 104). New actors in such situations, who have a reason to be out-of-place, are not as embedded as the ones who are already familiar with the prevailing rules and routines (Cresswell, 2004; Maguire, Hardy, & Lawrence, 2004; Reay, Golden-Biddle, & Germann, 2006).

The same applies when driving for the first time in left-hand traffic and not being familiar with the rules of the road. In these kind of situations it is allowed and socially acceptable to be out-of-place (Cresswell, 2004). When being out-of-place, it is allowed to act differently and observe others. As a practical tip from their business experience Kelley and Littman (2001, p. 122) advice, that there should be just the minimum amount of rules in an office space: "The fewer rules the better." The lack of official rules from the very beginning gives then the people, the users of the space, the opportunity to create their own meanings, rules, and ways of working. The existence of rules is also connected to communities and interaction, which Wenger (1998) elaborate when talking about communities of practice, and Fayard and Weeks (2007) discuss when talking about the affordances of the spaces. However, rules are not only a negative thing, since they can also guide people how to behave in a new environment.

Rules in classroom setting

The rules and norms mentioned above have been also built around universities and learning. You should not talk loudly to your friends during class, you should address your professors formally, and you should not just walk into faculty's office without booking a meeting time in advance. We have been taught already from the primary school onwards how to act and behave in a classroom. There are social and cultural expectations, norms, in places that we obey and know even though there are few signs or concrete structures since we have learned them with time and through others' examples (Cresswell, 2004). In addition, usually there is no conflict in interpreting the right kind of behaviour in a classroom setting, since most of the classrooms are very similar and all afford same things (Graetz & Goliber, 2002). Place and normative behavior are connected, what is appropriate and what is out-of-place (Cresswell, 2004). However, a totally new environment, like in a new classroom, the way how to behave might not be obvious from the very beginning (Cresswell, 2004), and we might be confused, since the space seems to afford new things (Fayard & Weeks, 2007) and we are not familiar with the rules and norms of the space.

As roads, libraries, and doctor's waiting rooms, schools and universities are also filled with rules and certain learned ways of working. The traditional classrooms "make perfect sense to students who expect to sit quietly and listen to a lecture" (Graetz & Goliber, 2002, p. 15). However, if the teacher wants to change the behavior and practices in the classroom without doing any physical modifications in the space, it might cause only negative feelings in the students, since the physical space has not been designed to support interaction and team working (Graetz & Goliber, 2002). Thus, if we want to change the interactions taking place in a classroom, the physical space should be also changed accordingly. When creating a new physical environment, that supports collaboration and "brings affordances in line with student impressions" encourages the teachers and students to adapt new rules and ways of working (Graetz & Goliber, 2002, p. 16). New activities in a traditional physical space can influence negative attitudes, feelings, and unwanted behaviour if the space and the desired way of working are not aligned, whereas a new space can give an opportunity for all the stakeholders to 'cross the socio-cultural line' (Cresswell, 2004) and engage teachers and students into new kind of interaction and learning.

Culture of feeling and allowing

*"The boss gets to speak first [...]. Hierarchy is the enemy of cool space."
(Kelley & Littman, 2001, p. 136)*

It is important that the spaces supporting experiential learning have a very strong feeling of trust and safety for all the users. Negative emotions such as fear can block learning altogether (Kolb & Kolb, 2005) and instead of fearing failure, the space should embrace discoveries, trying, and experimenting (Bickford, 2002). In the new learning environments teaching staff can safely try out new techniques, physical arrangements and approaches to teaching without the fear of unsupportive teaching evaluations (Bickford, 2002), and the students can feel like they are in the right place and belong to the group (Kolb & Kolb, 2005). The evaluation of the teaching goes beyond the interaction between the teacher and the student, and here the management and colleagues in the university play a crucial role. When creating a new learning environment it is important to allow the faculty to use it and also create buzz and excitement around the space in order to raise awareness and interest also in broader public (Bickford, 2002; Dittoe, 2002).

Earlier I defined how proximity and privacy are elements, which when used and harnessed in the right way in a physical space, can increase interaction and collaboration. However, taking proximity and privacy into account is not enough, if people feel that they are not allowed to interact (Fayard & Weeks, 2007, 2011). No matter how nice social areas and meeting places there would be, if the culture does not encourage and approve informal interaction, the pretty space will not do the trick. This might result into situation where meeting rooms are booked for informal chats, since it is in a traditional sense socially more acceptable to sit and talk in

a meeting room, which looks like you are working, than talking over a cup of coffee sitting on sofas, which might look like slacking off. Earlier, this ‘chitchat at the watercooler’ was a distraction and an unwanted thing, as today working spaces are designed to encourage those unplanned coincidences (Fayard & Weeks, 2007, 2011). The opportunities and affordances that we interpret from spaces are a complex interplay of social rules, meanings, and general norms, together with the physical solutions in the space.

As a result, it is important that both the visual cues and the spirit and culture of the space are aligned in order to afford certain kind of behavior - be it for example increased interaction across hierarchical levels or enhanced self-imposed actions. Hence, if the university invests a lot to build new colourful and wonderful-looking spaces but the respect, permission, and encouragement to try out something new is missing, new behaviours are unlikely to emerge and the old habits will be hard to change.

New practices in physical spaces

“Place is made and remade on a daily basis. Place provides a template for practice – an unstable stage for performance” (Cresswell, 2004, p. 39)

“Cultivating opportunities for change, fitting a “new” way into established systems, and proving its value to others are ongoing endeavors” (Reay et al., 2006, p. 993).

People, practices and things are often connected to certain places and when this link is broken, people are acting out-of-place and against the code of conduct (Cresswell, 2004). Places are not like products that come out of a factory, they are in process and influenced by cultural practices (Cresswell, 2004). Practices are formed usually through very mundane everyday actions, such as making and drinking coffee, finding a place to hold a meeting and choosing the same seat on every lecture. Practices however can be changed and new ones created. Cresswell (2004) explains how a park might be built to be children’s playground and recreational area with beautiful grass areas, but soon homeless people might start sleeping on the benches and people start making shortcuts and create new pathways through the grass.

However, we still do not know how new ideas and practices spread so that they become the new habits (Reay et al., 2006). So far the role of individual actors in institutional change has received little attention (Reay et al., 2006), even though the meanings individuals attach to certain places, institutions or practices can influence the ways of working and the nature of work (Zilber, 2002). As an example, universities are performed with their everyday practices – people go to libraries, cafeterias and lecture rooms. Practices are reproduced every day. Cresswell (2004) discusses how place and practice are connected and how places can encourage certain behaviors and discourage others, or in other words, how places can afford some things and not others.

Maguire and his colleagues (2004) have researched emerging fields and the institutionalization of new practices. Their research is well applicable to the situation in Graz, since the development of PIP course was an emerging new field inside the institution, and required the establishment of own organization and own practices. When introducing new practices it is essential that they are linked to the already existing organizational routines, and aligned with the shared values (Maguire et al., 2004). When the practices are brought to the value-level of different stakeholders, they become the new field-level norms (Maguire et al., 2004).

In contrast, Reay et al. (2006) depict change through three microprocesses. First the actors create opportunities for change by being “alert for situations or events, that they could use to introduce and increase the visibility of the new role.” (Reay et al., 2006, p. 984). These events and situations can be both formal or informal (Reay et al., 2006). In Graz I for example attended the students’ lectures and staff’s gatherings to introduce myself and explain what I was doing. Second the new actors need to fit their role into the existing system and environment: they justify that there is a need for that role and get “hooked into the work procedures” (Reay et al., 2006, p. 986). As a new actor in Graz it could be seen that I failed with this task, since the idea and order to change activities came top-down and I did not realize I should pay more attention on how the role fits to the current environment and the organization in the university. Third Reay et al. (2006) explain how actors prove the value for the new role. In this phase the actors try “to get others ... to recognize the value of the new role” by showing what they can do and what is the impact of their actions (Reay et al., 2006, p. 988).

In organizations, there are actors, who are “carriers of institutional meaning [...] social structures are constructed by people, routines are enacted by people, and cultures are interpreted by people.” (Zilber, 2002, p. 236). When developing the Design Loft and its ways of working I indeed carried meanings and practices learned and interpreted from ADF to TU Graz. It all comes down to people who are willing and capable of transferring the mindset and the practices further.

3. RESEARCH SETTING

3. RESEARCH SETTING

In this chapter I intend to show how my interest towards the opportunities related to physical spaces and communications brought me to Graz, and depict the starting point for this project.

In order to start this project from the very beginning I need to describe my motivation and background, and what Aalto Design Factory is in terms of concept, space and culture. The concept of ADF and the Product Development Project course organized at ADF has inspired both the establishment of the Product Innovation Project course in TU Graz and its new development phase.

3.1 MY MOTIVATION

This thesis was not given to me as an assignment, instead I grabbed an opportunity to do an interesting project and simultaneously utilize the new experience as a topic my master's thesis. Since the idea for the thesis was born together with a practical project opportunity, the origins and aims of the thesis are very practical instead of academic. That is why action research was chosen as a methodological approach for the study.

Figure 2 shows my whole journey from the first day I started working at Aalto University Design Factory to this day, as the thesis is being finalized. In qualitative research the researcher enters a social context with all their past experiences and history, and utilize that knowledge in their research (Denzin & Lincoln, 2005). This is why my background with experiential learning and untraditional physical spaces starting in August 2011, has build up my expertise, and helped me to interpret the situation in Graz. The experience of working at Aalto Design Factory gave me the confidence to go to Graz in October 2013 to support the development of the local PIP course in the first place.

This thesis project started in June 2013, as I got the opportunity to represent Aalto University and PDP at the PIP Final Gala in Graz, Austria. There the professor responsible of the PIP course at the time explained how they were looking to expand and develop the PIP course. To support the students' learning better, the institute had negotiated a 100m² space from the university, a rooftop office in another building close to the institute, which they wanted to redesign to be the PIP courses home base. As the faculty of the PIP course had had connections to ADF in Finland already for several years, the professor asked for practical development help from ADF to get the most out of their new learning space, and to bring in new spirit and mindset.

After a few months of preparing all practicalities, I left to Austria in the beginning of October

2013 with two years of working experience at Aalto Design Factory, a Bachelor's thesis written about spaces that afford accidental encounters, and lots of inspiration from visiting several creative institutes, co-working spaces and hubs both in Europe and in the USA.

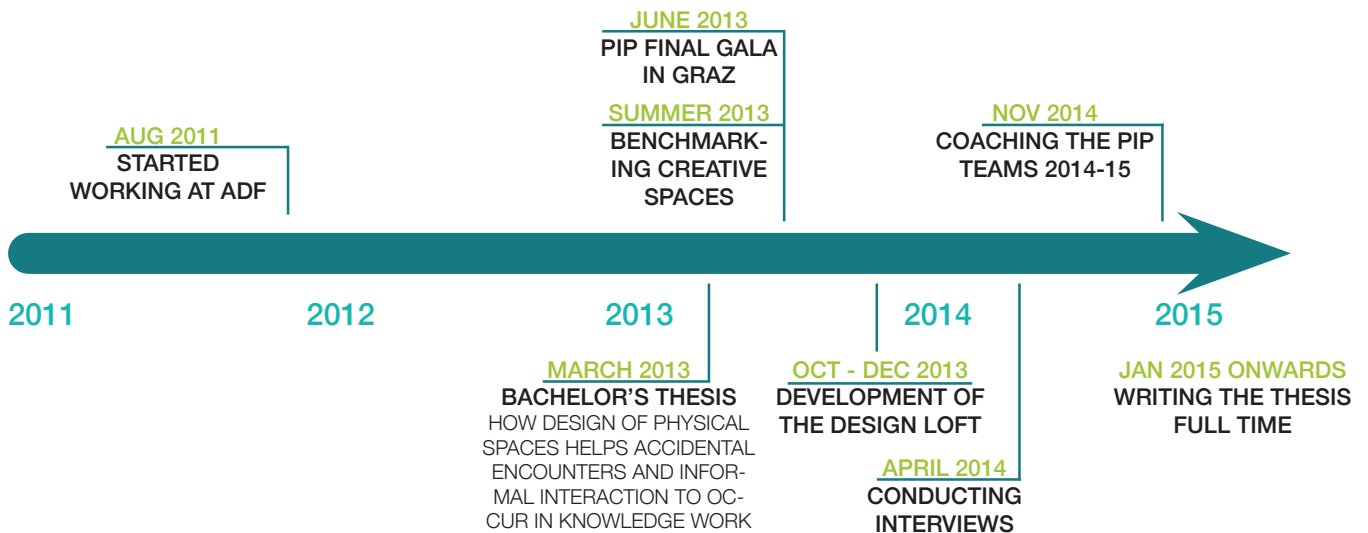


Figure 2: My background

After the intensive three-month research, development and learning period in Graz, I returned to Finland and started planning the scope and focus of the thesis. In the beginning of April 2014 I returned to Graz to conduct guided semi-structured interviews where the interviewees reflected their experiences in the previous fall, and in late May I helped to set up the final PIP Gala that was organized on the 2nd of June. After that I have been analyzing my data, reading literature, and reflecting on my experience in order to understand what are the physical elements and ways of working in a learning environment that support experiential learning.

Aalto Design Factory (ADF) is a non-hierarchical experimental learning platform for integrative interdisciplinary education, research, and industrial collaboration, as well as a catalyst for a culture of experimental and problem-based education to promote better learning outcomes. ADF is one of the spearhead projects of Aalto University bringing together students from different disciplines, teachers, researchers, and entrepreneurs under one roof in the Otaniemi campus in Finland. (Björklund, Clavert, Kirjavainen, Laakso, & Luukkonen, 2011).

3.2 AALTO DESIGN FACTORY – AN EXPERIENTIAL LEARNING PLATFORM

“At the Design Factory, out-of-the-box thinking is the norm, challenging authorities is required, and results follow from unexpected encounters”.

- Tuija Pulkkinen, Vice President Research and Innovations,

Aalto University (in DFGN Atlas edited by Oinonen & Lyytikäinen, 2015)

Founded in 2008 Aalto Design Factory (ADF) is one of the Factory projects in Aalto University. ADF has its roots in a research project called Future Lab of Product Design which was focusing on creating an ideal physical and mental working environment for product developers and researchers of product development, and on encouraging interactions between students, researchers, teachers and professional practitioners (Björklund et al., 2011; Laakso & Clavert, 2014).

ADF is built inside an old research laboratory which today is a 3200m² facility consisting of prototyping shops, flexible lecture and event halls, meeting rooms, social spaces, shared working areas, and places for informal gatherings and ad hoc meetings (Clavert & Paloposki, 2015). ADF aims at developing interdisciplinary learning and teaching, and it brings together students, teachers, researchers, entrepreneurs and industry representatives from various different fields and disciplines (see e.g. Björklund, Nordstrom, & Clavert, 2013; Clavert & Paloposki, 2015; Laakso & Clavert, 2014). As an environment embracing flexibility with low hierarchy and informal atmosphere (Björklund et al., 2013; Clavert & Paloposki, 2015), the underlying assumptions are that all people have potential, co-creation improves outcomes, and passion enables better learning & innovation (Oinonen, 2012).

Design Factory’s teaching approach could be described as “experiential pedagogy, which strives to emphasize student-centricity, encourage passion-based learning and link theory to practice in project-based studies” (Björklund et al., 2013, p. 568). The experiential emphasis on ADF learning pedagogy is based on the approach where learning and knowledge happens in the learning situation and in the social context, through small-scale experiments both in practices and problem solving, and through observation and help from more experienced professionals to participate and act (Björklund et al., 2013). This apprentice-based learning and teaching model is originally introduced by Lave and Wenger (1991).

ADF has been a source and inspiration for research for many of its community members. For example Oinonen (2012) has analyzed the culture of ADF in her master’s thesis in order to share understanding how a physical manifestation such as ADF can be internationalized and Vainio (2014) has shown in her diploma thesis how the ADF model can be transferred to another cultural setting, bearing the underlying assumptions and cultural values in mind. Oinonen (2012) came to the conclusion, that ADF is a community of people who use the space, form the ways of working and evolve through the space, it is an atmosphere and organizational culture

which is formed through ways of doing things, and it is also a project in Aalto University, which gives a certain meaning to its role.

The value of physical spaces at ADF

As (Oinonen, 2012) found in her study, physical spaces of ADF and elements in spatial design were not only facilitating certain behavior but also affording and encouraging some ways of working to emerge. The spaces foster interaction both between the students on the courses and students and teachers, as they are flexible and different to the traditional classrooms (Björklund et al., 2011; Oinonen, 2012). In addition, the nature of the physical spaces promote “non-conventional ways of working, and doing things differently” (Björklund et al., 2011, p. 61).

For the students the physical space gives the opportunity to engage both in working with their team on their project, and also to more informal activities, such as cooking with the peer students, which enhances team spirit, interaction and feeling of togetherness. The physical home base makes it possible for one team to work under the same roof on different tasks and interact effortlessly, and it offers always a place to work and leave your ideas on the table. Being able to pop in and out of the work and leave your ideas visible for future processing, is very important for team working, new ideas and the whole process of product development (Björklund et al., 2011). The PIP teams also got to know the spaces at ADF as they visited Helsinki for the final gala in May 2014 (see figure 3).

However, despite their important role, Oinonen (2012) also found, that the spaces were taken for granted when talking about organizational culture. Perhaps when spaces function well and support our ways of working, we do not pay attention how they afford and enable our behavior and actions.



Figure 3: One of the PIP teams working at ADF

Organizational culture of ADF

Culture at ADF is about creative ways to say yes. It is about interactive ways of working and developing teaching in practice. It is an environment where the students come first, and where the whole idea is to support better learning.

Oinonen (2012, p. 82) has analyzed the ADF organizational culture in four levels. Her findings are summarized in the table 1. The main interest in this study is in the norms of ADF, which are translated and passed on through space.

ASSUMPTIONS	VALUES	NORMS AT ADF	MANIFESTATIONS
All people have potential	User centricity & platform thinking	Trust, responsibility, freedom, low hierarchy, openness, accepting incompleteness, positive attitude	Support, low hierarchy, learning, openness, identity creation, lack of bureaucracy
Passion enables better learning & innovation	Inspiring motivation and hunger for learning	Leaving comfort zones, curiosity, inspiration	Continuous development, wicked PBL, passion, positive atmosphere
Co-creation improves outcomes	Community	Access, open innovation, creating interactions, working together, interdisciplinary, information sharing, proactivity, co-creation	Communal spaces, coffee and food, information sharing, new knowledge, serendipity
	Creativity of processes	Failing, fun, experimentation	Space, hands-on doing, prototyping, blurring boundaries between free and work-time

Table 1: Organizational culture of ADF

For this study it is important to understand how I, as a representative of ADF, went to Graz having these assumptions, values and norms in heart. As we connect rules and certain behavior, and create meanings to spaces, the aim of this project in Graz was to introduce these values and norms of ADF to support the PIP course, through the physical space. These principles of access, low hierarchy, trust, freedom, positive attitude, inspiration, information sharing, working together, and creating interactions, were the implicit building blocks when designing the Design Loft in Graz. However, these norms and translations of ADF are not just implicit, but also explicitly communicated in the report Aalto University Design Factory in the eyes of its community (Björklund et al., 2011).

Summarized, ADF is most importantly (Björklund et al., 2013; Clavert & Paloposki, 2015; Oinonen, 2012):

- Diverse & interdisciplinary,
- Student-centric,
- Embracing contextual and social learning and knowledge sharing,
- Informal,
- Open,
- Based on trust,
- Collaborative,
- Experiential,
- Flexible in terms of physical space and mindset, and
- Environment with low-hierarchy.

3.3 PRODUCT INNOVATION PROJECT INSPIRED BY PRODUCT DEVELOPMENT PROJECT

In 2004-2005 a master's student from Graz University of Technology (TU Graz) from Austria was doing his exchange year in Helsinki University of Technology (nowadays Aalto University). During his exchange year he participated the Product Development Project (PDP) course, which is an interdisciplinary product development course where students are working in teams on projects given by industrial partners (PDP, 2015). Just a year after, he was coaching and supporting one of the student teams in PDP as a sponsor, seeing the whole process from another perspective.

These experiences got this master's student to use his diploma thesis as an opportunity to investigate how a similar project to PDP could be introduced to TU Graz (Fallast, 2007). The pilot project started with one project team and one industry sponsor in TU Graz during the academic year 2006-2007 (Fallast, 2007). In his diploma thesis he defined the general importance for projects such as PDP, defined what is needed in order to launch the local Product Innovation Project (PIP) course*, and as a result of his thesis designed organizational structure, which would support the institutionalization the PIP course (Fallast, 2007).

The core concept of PIP is build on the principles of Open Innovation, where internal R&D is spiced up with external ideas and inputs (Chesbrough, 2003), on problem-based learning, and on soft skills (Fallast, 2007), such as team working, communications and project management. In the case of PIP, the students in the interdisciplinary and international teams are providing the external view for the collaborating sponsoring companies. Fallast (2007) identified that for successful implementation it is important to have an active an motivated project coordinator, who is familiar with similar student projects, related practicalities and their challenges, and support from the top, from the leader of the responsible organizational unit, who acts as a power promtor (Hauschildt, 2003) and contract partner. More generally it is crucial to collab-

orate with those stakeholders who want to collaborate and realize something new.

In his diploma thesis Fallast (2007) also describes the facilities that the PDP course has in Finland and concludes that the PIP course has to use any existing university facilities available and possibly workspaces at the sponsoring companies to carry out the projects. However, Fallast (2007) acknowledged that in order to be innovative and bring value to the companies, the most important thing is not only to follow a step by step process but also to pay attention to the surroundings and the spirit where the process takes place, i.e. both physical spaces and the organizational culture. Hence, he defined that an optimal physical space for PIP would be a meeting room big enough to host all the teams and their course assistants, provide basic equipment for team working (e.g. whiteboard, internet access, and office supply) and for prototyping, and that it would be like a home for the project teams where they can come to work and leave their materials and prototypes (Fallast, 2007). Having this kind of a home base would “enhance team’s productivity and would allow ‘personalising’ the team’s working environment” and that such “a comfortable working environment would also enhance creativity” (Fallast (2007, p. 67).

Since the first pilot year the PIP course has developed over the years incrementally, having 1-2 projects each year and no physical home base for the students. However, the situation was about to change in the Fall 2013, as there was an opportunity to transform a 100m² rooftop office into a creative learning environment. The aim of this new development project in Graz was to redesign the office to support the students’ work in the best possible way, bring ADF ways of working and approach through spatial design to the new space in TU Graz, and support the establishment of experiential and interactive learning culture.

TU Graz is the second largest university in Styria and one of the three technical universities in Austria. In TU Graz the teaching and research is focused in the fields of engineering sciences and the technical-natural sciences (TUGraz, 2015a). One of the institutes combining business and engineering studies is the institute of Industrial Management and Innovation Research. Approximately 10 courses are organized at the institute annually, one of them being the 8-months lasting Product Innovation Project.

Product Development Project (PDP) is a course arranged at Aalto University in Finland. It is primarily aimed at students of engineering, industrial design, and business who are interested in product development of investment or consumer goods. On the course, multidisciplinary student teams work during one whole semester to develop solutions to problems that are given and sponsored by manufacturing companies, who are searching for innovative cooperation with the next generation of product developers. (PDP, 2015)

Product Innovation Project (PIP) has been inspired by the former: It is a problem-based interdisciplinary product development course organized at the institute of Industrial Management and Innovation Research at Graz University of Technology in Austria, where the students work in teams, supported by the teaching staff to deliver solutions to the design briefs given by the sponsoring companies. Student teams deliver a working prototype for the company at the end of the course and present it in a public final gala for audience. The course lasts for one academic year, from October to June. (TUGraz, 2015b)

PIP organization 2013-2014

The PIP organization is defined in the course handbook (Fallast, Pointner, & Schnöll, 2013) and I will present it briefly here. As PIP is one of the several projects organized at the Institute of Industrial Management and Innovation Research (hereafter iBL), none of the staff members are working full time on this project.

- Professor of two institutes Industrial Management and Innovation Research, and Production Science and Management at TU Graz. Her role is to be the power promotor on the top level, support, and have a strategic overview of the course.
- PIP project manager, PhD student. Her role is to manage the project on an operational level, take care of the practicalities and be the contact person for the collaborating industry partners.
- Project supervisors, two PhD students. Their role is to support, help and coach assigned student teams and their industry partners during the process.
- Student assistant at the institute. She is supporting and helping with all the projects at the institute, including being a contact person between the institute and the PIP students.
- Institute faculty. Faculty at the institute is helping with administration and other practicalities related to the PIP course.
- Student project managers (four project managers in 2013-2014). Their role is to coordinate their teams to work together, to make sure that the team reaches their goals, and communicate between the course staff, company representatives and the student teams.
- Students participating the course, coming from different universities and different disciplinary backgrounds.
- Company representatives. They are giving the task for the student teams and sponsoring the projects. They meet with the teams and their project supervisors on a regular basis and help to take the project forward.

Learning outcomes of PIP

“Product Innovation Project is not a course as many others. By applying to the course, students show that they are willing to face a real challenge. This is what students also have to deal with “out there in the real world” after academic education – the real challenge. Students use all they have learned – their knowledge, but also their soft skills. They are working in a team, so every team member is carrying a part of the team’s responsibility!” (Fallast et al., 2013, p.1)

In courses based on experiential learning, such as PIP, the most important thing for the students to learn is not the technical expertise on building a prototype, soldering or using certain materials. The biggest learning experience is connected to the soft skills that they learn while carrying out a project with a real challenge – resembling a situation from real life (Laakso & Clavert, 2014). The project is interdisciplinary and international (Fallast, 2007),

and hence the soft skills, such as team working, leadership, communications, curiosity, and project working play a big role throughout the year. The students participating a similar interdisciplinary product development courses in collaboration with real industry partners at Aalto Design Factory also report how during the process they have learned team working, networking, time management, communications, openness, attitude and collaboration (Tuulos & Mansikka-Aho, 2015).

Both soft and practical skills are necessary for newly graduates who are entering the career path (Fallast & Oberschmid, 2009). However, the soft skills cannot be taught in traditional classroom courses, and they are also seldom explicitly mentioned when talking about learning objectives (Fallast & Oberschmid, 2009). PIP is a course that is supposed to teach the students the theoretical side of product development, give the practical experience, and support the learning of soft skills (Fallast & Oberschmid, 2009). Already after the first pilot year it could be shown how the students had improved their soft skills, and that there was a correlation between dedication to the project work and learning effects (Fallast & Oberschmid, 2008, 2009).

Officially the learning objectives for PIP course are stated as follows (TUGraz, 2015b, emphasis added):

“After successful completion of the course, the students have acquired a general understanding of product innovation and the innovation process. They are familiar with methods related to the innovation process and are able to choose and apply the learned methods in different situations. **The students also gain experience by working in an interdisciplinary, cross cultural team, including virtual team collaboration.** They are able to develop and evaluate product concepts, including working prototypes.”

The learning of soft skills is not explicitly mentioned in the official course learning objectives, however it is tightly embedded to the origins of the project and it is an embedded part of an interdisciplinary team working process. On the course website (PIP, 2015) the benefits for participating PIP are listed and also soft skills are emphasized when mentioning among others the value of working in a team, improving English language skills, gaining intercultural social competences, and dealing with project management and leadership.

3.4 NEW DEVELOPMENT PHASE FOR PIP

In Spring 2013 professor of the PIP course saw a possibility to develop the activities and expand the course, which had been running with 1-2 projects annually. The university gave a 100m² rooftop office from one of TU Graz's buildings close to the institute, and the plan was to redesign it to host the PIP course. As the professor asked for help from ADF staff to set up the space, he expressed how there was a need to create 'more buzz', 'Design Factory kind of spirit', and physical facilities that support students' work, and make PIP more well known among the students, teachers and companies.

With these new development activities the aim was to bring the PIP course to another level; create more interest among the students, support their working with necessary tools and spaces, and transform a traditional engineering centered product development course to a more collaborative and student-centric. This was the starting point for the practical implementations at TU Graz.

After intensive student recruitment, the academic year 2013-2014 for PIP started in a kickoff session (see figure 4) with more students and collaborating partner companies than ever before (36 students from 14 different nationalities and 11 different universities), and it was great time to develop the facilities where the course takes place to a new level. The plan was not to do excessive renovation and modifications to the space, instead the aim was to redesign it so, that it would be flexible and enable team working, prototyping, informal gatherings, meetings and individual working. The process of designing the space was meant to be continuous and experimental also by nature.



Figure 4: Kickoff session of the PIP course

Fall 2013 – setting up the Design Loft

The development of the Design Loft (hereafter Design Loft or Loft) began in one of the university's buildings, only approximately five minutes walking distance from the iBL institute hosting the PIP course. Throughout the whole development process in Graz, Aalto Design Factory worked as a benchmark to all activities due to my work experience, the professor's wishes, and the previous collaboration with PDP and PIP courses.

I worked as an external facilitator, coach, supporter, expert, and a helper for three months in TU Graz, brought in new ideas and helped the local staff to realize these ideas, develop the course practices, and set up the physical space. The main goal for my stay was to set up a home base for the students where they can meet and prototype. As a result, the rooftop office was transformed to a collaborative and open working area for the students and it was named Design Loft. Additionally, my aim was to establish a foundation for a community and create opportunities for interaction between different stakeholders, and introduce new spirit and ways of working.

The figure 5 shows how this intensive three-month development project started and how it went on together with the PIP course.

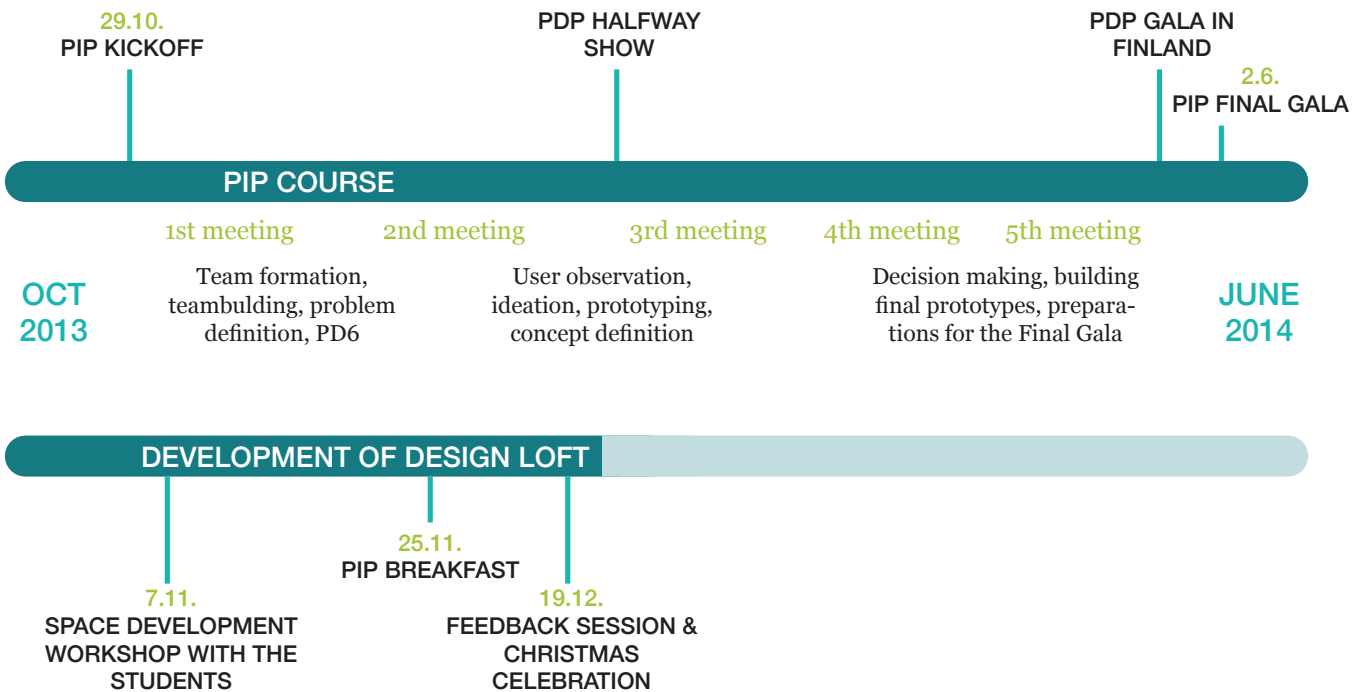


Figure 5: The development of the Design Loft and an overview of the PIP course

There were however some challenges for the development of this flexible and interactive space already in the starting phase. For example, we were not allowed to take a lot of the old furniture out, or to make permanent changes to the space such as paint the walls. Another challenge was distance: distance of the Loft from the institute, and the distance of the working space in the 5th floor and the prototyping space in the basement. These distances can be a barrier to learning, since the amount of interaction decreases if people are far apart and working in different floors, as for example Allen (1977) has pointed out in his research. Another barrier for learning can be the absence of necessary tools and materials. Simple materials and work-

benches for prototyping should be close by in order to move from an idea into a quick and dirty prototype as fast as possible (Leifer & Steinert, 2011).

There were also many positively surprising physical elements in the space that helped to set up the new flexible and creative environment: two of the main rooms are separated with a wall which was partly made of glass and thus see-through, all the doors separating the rooms are also partly see-through, and there is one big room that could host all the PIP students (ca. 30) at the same time. The glass in the doors and between the two rooms affords both privacy, and visibility. All in all, these limitations and opportunities had to be taken into account when redesigning the new purpose of the space. All these challenges and opportunities are listed in the table 2:

STARTING POINT	OPPORTUNITIES
Loft located to the 5th floor of the building - there are no people just passing by, you have to have a reason to come to the space	The space is not inside the official university building, it gives the opportunity for the students who have keys to use the space during flexible times.
The Loft is in a building separated from the institute - it does not enable unplanned encounters with institute staff or with other people at the university	Partly glass wall between the central room and the biggest rooms.
Room for prototyping and building is in the basement of the building - it is difficult for the teams to communicate if half of the team is building something in the basement and other half ideating in the Loft. Materials and tools for prototyping are in the basement even though most of the working happens in the Loft.	Doors have a window which increases the visibility and also affords privacy - people can see who are inside a room and what they are doing without disturbing them.
A lot of the furniture was already inside the Loft and we were not allowed to take them out.	There is a kitchen with a stove, fridge and washing machine.
Existing furniture is mostly built inside the Loft and was impossible to be dissembled. The furniture is heavy and ment for traditional office work, hence they do not support flexible arrangements in the space.	The unversity wireless internet worked in the Loft, and necessary connections were available to set up university's table computers.
Due to the tilted ceiling, there is not much wall space to put up whiteboards or creative ideation walls.	
Not allowed to do any permanent changes to the space, e.g. paint walls.	
Limited resources (budget) to do big changes.	
Difficult to access the Loft due to the limited amount of keys (Only two-three keys per team).	

Table 2: Challenges in the starting point and opportunities of the new development project

In the context of product development it is often mentioned that the teams need some kind of a home base to work with their projects, to build prototypes, and where they can work intensively and also leave their prototypes, ideas, and progress visible for the next day. To support prototyping, the idea was to keep materials such as hot glue guns, cardboard, and cable ties in the Loft for mockups, and for more sophisticated prototypes the PIP students were able to use among others the rapid prototyping laboratory Fab Lab of TU Graz, and the workshop space in the basement. This workshop space, named Down Under, was however not the focus of the intensive development period in the fall, since in the beginning of the PIP process the students concentrate mostly on defining the problem, generating ideas, and getting to know the team.

On a personal level, my goals and aims for the stay in TU Graz were to:

- observe the situation and the needs of different stakeholders,
- be present,
- build a foundation for a community & bring people together,
- set up an untraditional learning space where the PIP students can work individually or in teams, meet, prototype, have fun and spend time,
- create the ways of working and rules inspired by Aalto Design Factory and Product Development Project,
- support both the students' and staff members' work, and
- bring in new perspectives, spirit and ways of working.

4. METHODOLOGY

4. METHODOLOGY

This is a descriptive and qualitative study, which does not aim at measuring the success or failure of the development phase in the PIP course or the redesigning of the Design Loft. Instead, my aim is to show how the project was carried out, the community was involved to the process, the space was set up, the data was acquired and finally analyzed for this thesis. In qualitative research reality is socially constructed, where data collection and its analysis are sensitive to the context (Eriksson & Kovalainen, 2008), and where disciplines and fields are mixed (Denzin & Lincoln, 2005).

Qualitative research “is situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that make the world visible” (Denzin & Lincoln, 2005, p. 3). Field notes, interviews, conversations, and photographs are representations of the world (Denzin & Lincoln, 2005). As qualitative research includes a “collection of a variety of empirical materials” (Denzin & Lincoln, 2005, p. 3), I have acquired the data with participatory action research approach, and by spending several hours for three months in the Design Loft, by writing a daily field diary which was transformed into in-depth analysis and stories of those observations, and by elaborating the observations by interviewing the main stakeholders.

As typical for qualitative research, this study is based on the philosophical idea that reality is subjective, where experiences, perceptions and interpretations of the reality are different for each person, they might change with time and evolve in social interaction with other people (Denzin & Lincoln, 2005; Eriksson & Kovalainen, 2008). Hence, reality is something that is socially constructed and knowledge is only available through social interaction – this epistemological approach is called subjectivism (Eriksson & Kovalainen, 2008). A researcher conducting qualitative research is creating knowledge about this socially constructed reality in an interpretive manner, studying phenomena in their natural settings (Denzin & Lincoln, 2005). Constructionist view on knowledge and reality is typical especially in action research, where the researcher and researched organization are in close relationship, and reflexivity is key (Eriksson & Kovalainen, 2008).

When researching for example organizations, management or growth of business, the questions and issues arising are usually very practical (Eriksson & Kovalainen, 2008). Hence, researchers in this field both have a very practical starting point for their research, and they also actively collaborate with these businesses to solve and develop e.g. organizational activities (Eriksson & Kovalainen, 2008). Gummesson (2000, p. 164) expands how “in action science, the researcher/consultant is expected to produce ‘usable research’, defined as research that could be applied in real-life situations and be helpful to the practitioner.” Hence, as the idea

and need for this study started from a very practical need and wish to develop the activities around the PIP course, the methodological choices support the practical approach and explain how the study was carried out. In this chapter these aforementioned methodological choices of this research are explained.

4.1 ACTION RESEARCH

“Stimulate Action Research. There is so much we still don’t know about the effects of physical space on the learning of specific disciplines. What are the barriers, institution by institution, to encouraging such action research? Stimulating action research may require anything from creating ‘safe zones’ for experimentation to a review of promotion and tenure documents.” (Van Note Chism & Bickford, 2002, p. 96)

In this quote Van Note Chism and Bickford (2002) talk about using action research to design better learning environments and physical spaces. As a social, collaborative, iterative and interactive process, action research is a great way to learn about existing practices and development of new practices, and empower the focus organization to reflect on their challenges and situation (Eriksson & Kovalainen, 2008). Action research is used as an approach to the research process when “close collaboration with the research object and its practical problem solving is part of the research process”. (Eriksson & Kovalainen, 2008, p. 193).

The roots of action research stem from anthropology where typically in order to research a specific community the researchers become active members who help the community to overcome different challenges they might have (Eriksson & Kovalainen, 2008). Instead of approached purely as a research method, action research should rather be understood an approach to certain kind of research, (Eriksson & Kovalainen, 2008).

In action research, real-life cases and problems are the driving force - there is always a practical starting point for the research, a need to change something. Thus, action research combines theory with practice (Sein, Henfridsson, Rossi, Puroo, & Lindgren, 2011). It involves both the researcher and the researched community in active engagement and practical action, in data acquisition, in data analysis, and in transformation of new knowledge through social interaction. While being involved and creating knowledge together with the researched community, action research utilizes several different methodologies to create such interactive research design, and through the collaboration and active participation, it empowers people by participating, providing knowledge and raising consciousness. (see e.g. Altrichter, Kemmis, McTaggart, & Zuber-Skerritt, 2002; Eriksson & Kovalainen, 2008).

Often the action researcher initiates the project, not the organization (Eriksson & Kovalainen, 2008). However, in this case the project and the practical need to develop the learning environment came from TU Graz. The invitation and the request to have a consultant, an experienced facilitator, to help to set up the learning environment was targeted to Aalto Design Factory

staff, and as I was chosen, the project was coupled with a research agenda. It was not an issue to transform the consultant role into an action researcher's role, since processes, goals and approaches of action researchers and management consultants strongly resemble each other (Eriksson & Kovalainen, 2008).

As a difference to several other research approaches, in action research there are no pre-set objectives to be fulfilled, instead it aims to “develop practical situations and competencies of the participants” (Altrichter, Kemmis, McTaggart, & Zuber-Skerritt, 2002, p. 127) and to “change patterns of thinking and action” (Eriksson & Kovalainen, 2008, p. 200). It is important to express how the participants are involved in the process, reflecting their own practices, improving them and creating social change (Altrichter et al., 2002). Action research is an interrelated nature of change, meaning the action, and understanding, meaning the research and reflection.

In order to find new solutions to existing challenges and give insight to development of new practices, the action researcher should have prior theoretical and practical knowledge of the research environment and its background before going to the field (Eriksson & Kovalainen, 2008). Eriksson and Kovalainen (2008) define how an action researcher should first get an idea of the field, take an iterative approach to the research design and identify research questions. As I explained in the research setting about my background, in this study we have had the opportunity to meet with all the key stakeholders several times before, I had visited the institute in TU Graz where the research was going to take place, and I was aware of the practical and pedagogical foundations of the PIP course. In addition, I took time during the first month in TU Graz to get familiar with the environment where PIP was taking place by discussing with different stakeholders in- and outside of the university.

In this case my aim is to explain how a new learning environment was set up and what kind of new practices it afforded in its context. Hence, answering these research questions requires explanation of the actions and activities that took place during the intensive development period in October-December 2013 and continued after it. For this reason action research is the perfect approach, since it is found to be a good approach especially when “the research question is related to describing an unfolding series of actions that are taking place over time in a certain group, organization or other community” and the aim is to understand “the process of change, development or improvement of some actual problem” (Eriksson & Kovalainen, 2008, p. 193-194).

Participatory action research

“Participatory action research is directed toward studying, reframing, and reconstructing social practices. If practices are constituted in social interaction between people, changing practices is a social process.” (Kemmis & McTaggart, 2005, p. 563).

The approach for this study is more precisely participatory action research (PAR). Action research itself has several differently labeled approaches, participatory action research being one of them (Eriksson & Kovalainen, 2008). The differences between these approaches are related to the research setting, level of involvement and emphasis on specific aspects (Eriksson & Kovalainen, 2008). However, the twofold aim of action research is similar to all of the labels: involvement of the researcher and offering solutions to real-life problems (Eriksson & Kovalainen, 2008). PAR is a social and educational process (Kemmis & McTaggart, 2005) where the researcher brings concrete value into the actual practices and interactions to the community instead of abstract theoretical knowledge about the challenges and practices (Eriksson & Kovalainen, 2008). For the community that is the focus of the research, action research is an opportunity, a forum, where the community can collaboratively create new practices, facilitated and helped by the action researcher (Kemmis & McTaggart, 2005).

All information and knowledge created in the process of action research should benefit both the researched community and obviously the researcher (Eriksson & Kovalainen, 2008). The power of PAR lies in its practical process approach, which is iterative and aims at involving the researched community and providing solutions for their challenges (Eriksson & Kovalainen, 2008; Kemmis & McTaggart, 2005). PAR “involves the investigation of actual practices and not abstract practices” (Kemmis & McTaggart, 2005, p. 564).

When I went to Graz I did not have a theoretical framework or a certain existing theory in mind, instead I approached the situation by agreeing what should be done, investigating the environment and planning experiments based on my previous experience and knowledge on theories related to spatial design, interaction, community building and communications. I was interested to pay attention to the incidents and encounters that were going to happen as the new learning environment was being set up. This approach is typical to PAR, where research planning and design is guided by the practical research questions instead of theoretical interests (Eriksson & Kovalainen, 2008).

Kemmis and McTaggart (2005) define seven key principles of PAR. They define, that PAR is:

1. Social process, it explores the processes between the social and the individual.
2. Participatory, it engages people to reflect their knowledge; it is not research done ‘on’ others.
3. Practical and collaborative, it invites people to collaborate and evaluate their practices such as communication, social organization and production.
4. Emancipatory, it releases people from the social structures that limit the development.

5. Critical, it challenges people to think about the social relationships of power, language and modes of work.
6. Reflexive, it aims at changing practices through spiral cycles and iterations.
7. Aiming at transforming both theory and practice, it does not develop generalized theories, which stand above practices, but instead it involves both 'reaching out' from the practice and 'reaching in' when utilizing the standpoints of theoretical knowledge.

The power of PAR is integrated in these principles. Summarized, as a researcher in PAR you are involved and close to the organization you are researching, you are part of the process and constantly planning and experimenting, you have both the ability to impact from within coupled with an external view, and you have a practical need and starting point for your research. In addition, some needs can be stated explicitly but some needs are implicit and can not be found in surveys or conversations (Gummesson, 2000). Action research is a perfect method for uncovering these tacit and implicit needs which can be uncovered only with presence, empathy and expert knowledge (Gummesson, 2000).

How then conduct participatory action research? The most important thing is to gain access to the organization. Once the access is granted, the focus of the research should be on the concrete practices and making them available and visible for discussion and reflection both for you as a researcher and the target organization (Eriksson & Kovalainen, 2008). I will explain more about gaining access and earning trust further in this chapter, but first I will define the cyclic process of action research.

The iterative nature of action research

Kurt Lewin has been one of the main contributors developing action research into a specific research approach. He has described action research as being a set on "interconnected cycles of planning, acting, observing and reflecting (writing up)" (Eriksson & Kovalainen, 2008, p. 196). Usually action research is simplified into a spiral cycle consisting four steps: planning, taking action, and evaluating the action, which leads to further planning and new actions (Eriksson & Kovalainen, 2008). It is crucial that the action is done in collaboration with the researched community and that all outcomes are allowed to happen, meaning that both intentional and unintentional outcomes can occur and the organization and the researcher should learn from both of them (Eriksson & Kovalainen, 2008). Action research process can go through several cycles and the different parts can overlap which each other, i.e. planning and action can take place simultaneously (Eriksson & Kovalainen, 2008; Kemmis & McTaggart, 2005). In reality, the spiral process is responsive, and the success is determined not whether all steps are followed, but instead if the researched community has a strong feeling that the situations and practices have been developed and changed (Kemmis & McTaggart, 2005).

Due to the iterative and comprehensive nature of action research process, it is impossible to finalize a proper data gathering in a short period of time (Eriksson & Kovalainen, 2008). As

this study is a master's thesis, there was limited amount of time to go through several cycles. As visualized in the figure 6, in this case the cycle of action research can be seen from two perspectives: one cycle was achieved during the three-month period and further planning, evaluating and action was left to the local organization to carry out without the participation of the action researcher, and additionally there were several smaller iterations happening during the three months, where experiments were planned, evaluated and tried out.

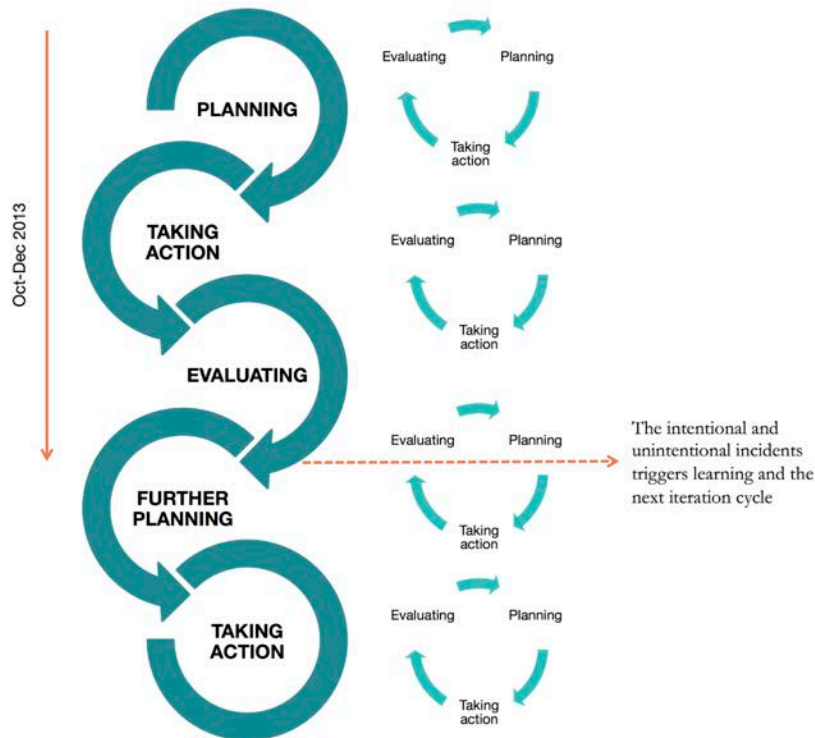


Figure 6: Spiral of action research cycle

Role of the action researcher

Helper, facilitator, consultant, assistant – there are several ways to describe the role of an action researcher (Eriksson & Kovalainen, 2008; Schein, 1995). In action research, the researcher and the community that is being researched are not two separate entities (Eriksson & Kovalainen, 2008). Instead, the researcher is part of the group and seen as an external facilitator who can bring in new ideas and approaches (Eriksson & Kovalainen, 2008). In this study, my role in the organization can be described more as a helper and facilitator, who finds solutions and works jointly with the local organization, rather than as a doctor, who meets the client and helps them with a given problem, but the relationship remains distant (Schein, 1995). Indeed, I was integrated to the community, but still in some cases seen and perceived as an external professional sharing valuable insight while facilitating the new experiments and ways of working. It felt like I was an insider with an outsider's perspective.

Action researcher is supposed to be involved to the activities that she is researching, and delivers solutions to problems that the organization is tackling with (Eriksson & Kovalainen, 2008). Hence, the role of and action researcher does not differ much from a management consultant, who is also actively participating in the client's organization and producing knowledge how to change certain processes and what are the prevailing challenges in that organization (Eriksson & Kovalainen, 2008). However, despite the similarities, there are differences in the two: for example the action researcher has a theoretical background and is expected to use scientific researcher methods for her study whereas a management consultant justifies her research empirically, an action researcher adopts a cyclical approach instead of a linear one, and as management consultants move on to the next case as soon as possible due to time and cost issues, an action researcher usually stays attached to her research case and materials after the project is done (Gummesson, 2000). Hence, even though PAR has gained critique for resembling a role of a management consultant instead of a researcher, these differences show why PAR is an appropriate research approach (Eriksson & Kovalainen, 2008; Gummesson, 2000).

As PAR requires intensive involvement in the researched community, it is highly important to develop trust among the community members in order to gain access and have the opportunity to observe, be involved and facilitate the collaboration (Eriksson & Kovalainen, 2008). In this study, the trust was built before the project through both personal and professional connections. In addition, due to my language skills I was able to avoid the language barrier and join and follow several informal conversations from the very beginning. Being able to discuss in German without doubt made the integration process and building trust smoother and faster.

The challenges in the researched organization and the research questions of the researcher might not be the same and during the action research process the researcher does not only acquire data to support her own research, but also helps to develop several other challenges in the organization (Eriksson & Kovalainen, 2008). During the intensive development period in TU Graz I did not only focus on developing the spaces and involving the community to that process, but I also helped to develop the communications practices (both internal and external, i.e. social media), to plan the content and think about future directions for the PIP course. The final research question was discussed with the community reflecting their needs and challenges, and finally iterated through several stages to the current form.

Implementing the required practical plan for the 'client' (Eriksson & Kovalainen, 2008) took place in several situations and many levels: The spiral iterative process of action research already gives the opportunity to act and implement solutions to identified problems already during the process, but the plan for action has been discussed also afterwards. After the three-month research period I summarized all development actions and ideas that took place to an executive manual that was given to the professor for internal purposes, and to a more informal workbook that was put together mainly to support the further development within the local teaching staff and to have a tool to transfer the ideas and observations that had came up during

the fall. This executive manual was one way to make the research process transparent and explicitly communicate the change process that took place. However, the manual alone does not serve the need to be transparent and communicate about the process (Eriksson & Kovalainen, 2008), during the three months I stayed in Graz, I took time to discuss about the plans and actions with several different stakeholders and listening their ideas. It is important in action research, that the empirical data is communicated to the stakeholders (Eriksson & Kovalainen, 2008).

4.2 ACQUIRING AND GATHERING DATA

All data that is gathered should be related to the research interests (Eriksson & Kovalainen, 2008). Thus for this study I chose to observe the everyday actions taking place at the Design Loft and write them down to a daily field note diary. In addition, I conducted reflective semi-structured interviews, since I wanted to hear how the researched organization reflected on the development, and see how iterative nature typical to action research continued and was carried out by the organization itself after the facilitator was not present and driving the development anymore.

One of the perspectives in action research is involving also the researched community into the data gathering and evaluation (Altrichter et al., 2002; Eriksson & Kovalainen, 2008; Kemmis & McTaggart, 2005). However, Kemmis & McTaggart also state how (2005, p. 563) “not all theorists of action research place this emphasis on collaboration; they argue that action research is frequently a solitary process of systematic self-reflection. We concede that it is often so; nevertheless, we hold that participatory action research is best conceptualized in collaborative terms.” The data for this study was analyzed and gathered mainly by the action researcher alone, but the community was sharing their insights and inputs both during the intensive development period in fall 2013, and afterwards via Skype conversations and emails. I will describe the data that is the basis for this study more in detail in the following sections.

As primary data for this thesis I will use:

- Field notes and a daily diary documented with participatory observation, from October-December 2013, which were analysed and summarized into most important themes.
- Nine semi-structured narrative and reflective interviews conducted in April 2014 with the main stakeholders of the PIP course.

As a secondary data I will use:

- Photos visually describing the events and happenings.
- Official PIP course handbook (induscript: Fallast, Pointner, & Schnöll, 2013)

To guide the reader, the quotes from the interviews will be depicted in the text in italic with **turquoise** colour and the excerpts from the field notes with **dark purple** colour.

Participatory observations at the Design Loft

“The close analysis of everyday practices is not the commonly accepted starting point for organizational studies” (Ybema, Yanow, Wels, & Kamsteeg, 2009, p. 16).

Despite this quote, interaction, involvement and participation is in the heart of participatory action research. If I had not been present in the everyday practices and experiments, and observed how the students and staff use the Design Loft or talk about it, I would have not as comprehensive and deep understanding of the process. As typical for action research, I was participating the development and activities that took place in the Design Loft, and becoming a part of the community that I observed. Hence, the observations are participatory (Eriksson & Kovalainen, 2008) and they were mostly conducted at the Design Loft observing the students', staff's and visitors' behavior and interactions.

The field notes are written on some days on extremely detailed level, if something interesting or remarkable happened, and on some days on a more general level, summarizing the happenings of that particular day. Also amount of observations change depending on other tasks and activities – on some days the data consists of the whole day and on some days just a couple of hours. I either wrote down observations and comments on the field right away, or reflected the happenings that took place afterwards. Overall, I wrote down the field notes daily, starting at the kickoff of the course on October 29th 2013 and ending to the Christmas celebration on December 20th 2013. The participatory observation data in this study is a combination of field notes and a diary, where I have documented concrete actions and explicit conversations that took place in addition to implicit encounters, nonverbal communications and own interpretations and observations of people's behavior.

I did not reserve a specific time for observations, instead I used every interaction and moment which I witnessed as an opportunity and tried to document everything that was interesting, made me wonder or showed untraditional behavior. I soon adopted a good daily rhythm, which supported my research in the best way: in the mornings I went to the iBL institute since that was the time when other PIP staff members were usually present in their offices and having a cup of coffee in the shared kitchen, it was a great way to have short informal conversations and share updates and ideas. Then, after lunch I went to the Design Loft and stayed there until the late evening, since that was usually the time frame when the students were organizing their team meetings and working there. Sometimes, I also went to the Design Loft on weekends, to see what was going on there. Hence, participatory observation is not a work from 8am to 4pm, it is continuous and connected to the rhythm and schedules of the researched organization.

When working in the Design Loft I usually sat in the common room, Nest, and wrote down any interesting observation that took place (see figure 7). As an integral part of action research, sometimes I observed actions that were unexpected and not intended – for example sitting in the Design Loft for many hours alone and not having any students using the space. Hence,

the observations do not only consider the things that happened, but also things that did not happen.



Figure 7: Nest in the Design Loft, most common place for observations

Transparency and communication are important in action research, and research ethics should be taken into account in any research project (Eriksson & Kovalainen, 2008). In this case the students and staff members at the institute were fully aware that in addition to helping and facilitating the development of the Design Loft, I was doing my research on the topic. Hence, the observations were non-disguised and also non-structured (Eriksson & Kovalainen, 2008), since I discussed openly about my research and it was not pre-determined what should be observed and what not – the observations include everything from quick conversations to events and from general feeling to working styles.

Analyzing the field notes

“Abduction refers to the process of moving from the everyday descriptions and meanings given by people, to categories and concepts that create the basis of an understanding or an explanation to phenomenon described” (Eriksson & Kovalainen, 2008, p. 23).

This was the driving force in my data analysis – to find larger concepts and categories from the data with the help of literature, in order to understand the behavior and everyday happenings better. However, the goal was not to generalize the everyday descriptions, since in action research the research case is always unique and a complex whole of the context, interactions and environment (Eriksson & Kovalainen, 2008).

As the observations were written to field diary, which was a messy chronological set of notes, in the first analysis phase I read through all the field notes, and wrote individual ideas and comments into full sentences and paragraphs. In the second iteration I made these sentences into stories and instead of following certain days, I categorized the observations under certain events or ways of working. This resulted in a long document filled with stories of the incidents and encounters that took place in the Design Loft. In the third phase I started summarizing the content and emphasizing some most critical incidents and highlighting interesting observation related to using the space, interactions that took place in the Design Loft and adopting new ways of working. Finally, I arranged these observations thematically instead of keeping the chronological order. Together with literature and interviews, the stories arising from this phase are the basis for the results of this thesis (see figure 8).

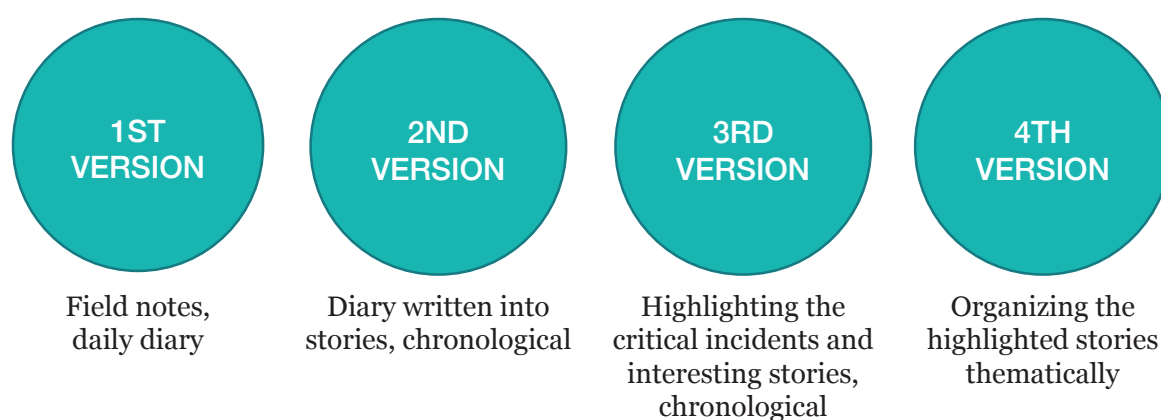


Figure 8: Phases of the field notes analysis

For action research, it is both an advantage and a disadvantage to be so close to the practice and theory – it was challenging to separate my own experiences and interpretations from others’ and review on the actions that took place in fall 2013 from an objective perspective. The purpose of this analysis is to make sense of the data and organize it in such a way that it opens eyes to interpretations and increases understanding of the research situation (Eriksson & Kovalainen, 2008). The main focus is to depict the actions that took place, the unconventional happenings, nontraditional behaving and new ways of working that the new environment was able to afford.

Semi-structured narrative interviews

Another source of primary data in this study is the semi-structured interviews. Interviews is a great way to collect more information on the research case and especially gain insight on the “people’s experiences as seen from their points of view” (Eriksson & Kovalainen, 2008, p. 81). I chose to conduct guided semi-structured and open-ended interviews, since it gave me the opportunity to set the broad direction for the conversation but also get the people talking about their experiences with their own words by asking ‘what’ and ‘how’ questions (Eriksson

& Kovalainen, 2008). I was able to get an idea of the people's authentic experiences (Eriksson & Kovalainen, 2008) and opinions in the interviews by asking them to 'describe their feelings and experiences' or by 'telling a story of an incident or happening they remember'. Overall, the interviewees had a narrative and interactive approach.

The interviews were conducted in April 2014, three months after the intensive development period in Graz as the course staff and students had gotten to keep working on their own. This reflective approach was a conscious decision, since it gave some time for the interviewees to reflect on the experiments and actions that took place during the intensive development period, and also see how the development continued in the spring 2014. According to Eriksson and Kovalainen (2008) follow-up is a most typical inquiry in action research, where the researcher gets an idea what is happening in the organization and who are involved. For this research I chose to interview nine key stakeholders of the PIP course who were all actively part of the process in fall 2013 and with whom I worked with: five staff members and four students, more precisely project managers of the three PIP projects in 2013-2014.

These people were chosen since they are the decision makers and also in key position in either developing the environment and taking the ways of working forward or moving the activities to another direction. It was important for this study to hear how the staff members had perceived the project, since they were the ones 'ordering' this help and development work. The staff members were also helping to realize the changes and they are the ones who will continue with the new practices and transfer the ideas to the new group of students. Hence, as they were not just seeing the end result, but also the development process and been involved in the decision why something had been done and how, they are in key role when developing the processes and practices further.

In addition to the staff members most involved with PIP, the students have a lot of potential to take on new practices and ways of working. In 2013-2014, as it was the first year with the new learning space, not all students had a key and guaranteed access to the Design Loft – just the project managers and one or two other team members in each team had a key. Hence, project managers in each team were the gatekeepers and the most important people bringing their team members to work to the Design Loft. The project managers usually invest the most time and resources to the project and interact with the staff members. Thus, they have a great overview of the whole project, and in experiential learning, which embraces the student-centric approach; they should be the most important people of the whole project.

After asking the people to participate to the interview and scheduling a time for interview with them, I sent a preliminary email to all of them describing the focus of my thesis and the methods I will be using. The email included also a timeline template that was meant to be a tool for discussion and which I was going to use during the interviews, and a few warm-up questions to get the interviewees prepared and already start reflecting the fall 2013 before the interview was going to take place. All interviews were conducted during one week and each

of the interviews lasted for approximately 60-75 minutes. The interviews were conducted for most parts in English and partly in German if the interviewee could not find the right word in English. The interviews took place in the Design Loft or at the iBL institute in a private room, which enabled confidential conversations. All the interviews were recorded and the interviewees were asked for approval for recording.

In addition to the timeline template, I prepared a set of questions, which were meant to loosely guide the conversations and initiate discussion (see appendix I). Hence, I did not follow the questions strictly, but let the conversation flow naturally to a certain direction. However, all conversations followed the same topics: first I asked some warm-up questions about their role in PIP and their perception of the course, then I asked them to describe their experiences, feelings and memories from the fall 2013 followed by the experiences from the spring term 2014. Then I asked the interviewees to explain what Design Loft is and how they perceived the role of an external facilitator in the development process. With some of the interviewees we closed up by discussing the future of the PIP course.

During the interview I asked the interviewees to draw, write or describe their feelings and experiences from both the fall and spring period with the help of the timeline template. As a result, most of them were looking at the template while talking, but only few of them decided to write or draw anything on it. However, I believe that it filled its purpose as a visual tool to help the interviewees to reflect on the past activities and happenings. Overall the interviews were successful and the conversations were fruitful. Due to the fact I was well acquainted with all the interviewees, mutual trust was gained easily, and the conversations, despite starting off a bit more formally, were informal and relaxed.

Analyzing the interview data

Like Eriksson and Kovalainen (2008) define, sometimes it is hard to compare and analyze the empiric material from semi-structured interviews, since the interviewees' answers vary and they interpret the questions differently. This was the case also with these interviews – clearly the students emphasized different things and perceived the development from another perspective than the staff members. The students also talked a lot more about their own projects and teams whereas the staff members saw the whole picture and talked about the PIP course in general. However, similar themes and topics came out from all the interviews related to interaction, informal events, possibilities to work differently, help of an external facilitator and the aspects that new physical space affords. I used different keywords to categorize the interviews and identify topics that come up repeatedly, such as: familiarity builds togetherness, barriers for communication, and value of informal events and gatherings, which are the basis for this analysis. The data analysis and interpretation was done transparently and no meanings and words were changed from the interview transcripts.

All the interviews were transcribed in English and in when analyzing them, three main categories step out: descriptions of the physical space, stories about interaction and social space, and feelings about the atmosphere and feeling of the space, i.e. the mental space. As a basis for this simplified categorization I have applied the descriptions of different kinds of spaces by Strassoldo (1993). He structures spaces into six different categories: **territory spaces** where people feel ownership and a need to protect the space, **personal spaces** which resembles the private sphere, **symbolic spaces** which are traditionally religious but can be understood as the tacit language of the space, spaces which define and describe the **behavior and practices in the space**, **organizational and political spaces** which are usually tools for power and hierarchy, and **lived spaces** which is the mental state, feeling, and meanings in the space (Strassoldo, 1993). Lived space combines all the physical, social and mental connections (Strassoldo, 1993). Hence, it is difficult to keep clear distinction between these categories, since the physical, social, and mental elements are very interconnected. More precisely, the interviews were categorized under the following topics:

Physical space

- Describing the Design Loft
- Developing spaces together with the users
- Attractive space invites to spend time

Social space

- Being physically present, the value of face-to-face communications
- Informal gatherings, bringing people together

Mental space

- Feeling in the space
- Rules and affordances

Since a fourth topic was clearly important in the interviews, a fourth category will be discussed in the seventh chapter, when reflecting on the action researcher's role:

Beyond the space

- Project coordinator facilitating the PIP process
- Begin a change agent – to be embedded or not to be?
- Continuity and transferring ideas

I was interested to hear how the project managers and staff members tell about the PIP course in their own words, how they describe their own role, what they tell about the practices and ways of working on the course and how they utilize and understand the new learning environment. These themes are closely connected to the features of experiential learning and all connected to the new learning environment, which affords new practices and interactions to emerge, and increases the 'outside of classroom' learning.

I encouraged the interviewees to tell stories and memories of the development process with their own words and hoped to find some unexpected or surprising changes in practices and behavior, which the interviewees would point out. There were several highlights and critical incidents that were identified in all of the interviews, such as the importance of informal gatherings and the interaction between the staff members and the students. Stories and narratives are a powerful tool for interaction, since they can be shared and they live long, as they are easily passed along.

The interviewees are anonymized into two categories, and the quotes from the interviews are identified with the following symbols:

- Student: S1, S2, S3, and S4
- Faculty (referred also as PIP staff or staff): F1, F2, F3, F4, and F5

In the fifth chapter I have presented only few best quotes and comments from the interviews, but for readers with further interest, all the selected quotes from the interviews can be found in the appendix III under these same aforementioned categories.

Secondary data: Photos and course material

The analysis of the data has been complemented with pictures and other material that helps the reader to understand not only the context but also the emotional state of the action. As the request was to develop “buzz” and new spirit to the PIP course, the study has tried to do this along the way, and convey all the colors of the feelings from frustrations to excitement. Traditionally in anthropology photos and videos are an important part of the research to share the experience also visually (Eriksson & Kovalainen, 2008), and the same applies in action research, where visual material increases understanding and provides a better picture of the setting. Pictures of different activities make the story livelier and explain more about the situation than words could ever do. In addition to photos, I have used the course handbook (Fallast et al., 2013) as a basis for the PIP course and its learning objectives.

4.3 RELIABILITY, VALIDITY & ETHICS OF THE STUDY

Informed consent is important in action research so that the community knows that it is being observed and that the people are voluntarily participating the research process (Eriksson & Kovalainen, 2008). As mentioned before, my research in Graz was transparent, the researched community knew I was collecting data for my master’s thesis and I regularly shared the progress with both the staff members and the students in informal conversations and meetings.

The validity of qualitative study is increased with triangulation, where the researcher utilizes several realities, has several approaches to acquire empirical data, and forms interpretations of new realities (Denzin & Lincoln, 2005). The credibility for the research rises from iterations, involvement and thorough analysis of the data (Denzin & Lincoln, 2005). Hence, the detailed

observations and interviews, and the careful analysis, make sure that the interpretations are based on the studied reality and data. It can be said that this study fulfills the requirements for trustworthiness, credibility and validity, as the researcher was in an intimate relationship with the researched organization, which ensures better understanding of the reality, and got close “to the actor’s perspective through detailed interviewing and observation” (Denzin & Lincoln, 2005, p. 12). In addition, the comprehensive field notes give rich descriptions of the situation (Denzin & Lincoln, 2005).

Typically in action research the degree of involvement changes depending on the case, and most importantly the role and the involvement should be discussed and agreed before the process (Eriksson & Kovalainen, 2008). Being close to the researched community, understanding the practical starting point, and iterative development of research questions has made this research approach powerful and action research a valid research approach (Eriksson & Kovalainen, 2008). Thus, the close participation and active engagement to the everyday practices when setting up the learning space and new ways of working was crucial for this project.

I am aware that when being integrated to the community, some of the conversations took place confidentially. Hence, I have not used such observations and conversations in this research. However, those conversations have unarguably added my knowledge and provided me with more insight and understanding as an action researcher of the researched environment, and could have influenced the both the observations and the analysis of the data indirectly. In this study all observations and interviews are anonymous. The aim is not to emphasize who said which comment, but how the people generally perceived the new activities, space and ways of working.

**5. PHYSICAL SPACE AS
A KEY TO NEW WAYS OF
WORKING**

5. PHYSICAL SPACE AS A KEY TO NEW WAYS OF WORKING

The main themes for this research arise from the experiences and observations of the action researcher, and from thorough analysis of the interviews. In this chapter these findings are categorized as following: descriptions of the **physical space**, reflecting on the value of the **social space**, and perceiving the **mental space**, i.e. the ways of working, rules, feeling, and spirit. As mentioned before, these elements are very interconnected and cannot be separated clearly from each other. Hence, all findings also have elements from all of these aspects how we use spaces, behave in spaces, and read the feeling and opportunities in a space. I observed several situations in the Loft where people understood what the new space affords, and thus could act differently compared to their normal ways of working in a traditional classroom setting. These new ways of working, and affordances of the Design Loft will be presented in this chapter.

5.1 PHYSICAL SPACE, THE DESIGN LOFT

The Design Lab is the brand new home base of the Product Innovation Project. It is a working environment enabling creative work, knowledge sharing and experience exchange. All facilities are designed for flexible use, with free interaction and prototyping made as easy as possible. Spaces can be easily modified and rearranged for various set-ups and different purposes of use. Meanwhile, the overall layout of the Design Lab encourages open communication and spontaneous encounters. (PIP, 2015)

The description of the Design Loft (the name was later changed to Design Lab) on the course's website resembles well how the faculty described the Loft in the interviews. It was interesting to hear how both the faculty and the students describe the purpose and activities of the Design Loft in their own words. Staff members' descriptions focus especially on the flexibility in the space, they talk about the Loft as a home-base and place for the students, and emphasize the nature of a creative environment and the difference to traditional lecture rooms:

“It’s your place to be creative. You are free there, you can do whatever you want, you can work whenever you want.” (F2)

“A bit unusual working environment, which should not act only as strict, serious, limited only to productive work, in the old fashioned way environment.” (F4)

“They have their own space 24/7 where they can meet, that’s not happening somewhere else. It’s like an identity. They feel home [...] they have space to be without asking

permission, they can do their own thing.” (F5)

The main users of the space, the students’ describe the space through their experiences in practice. They seem to be somehow more realistic, and for example do not mention the word ‘creative’ in their descriptions. Instead, they emphasize how they can both work and relax in the Loft and spend time there:

“...it’s an office, or I say that it’s a flat actually, that we have a kitchen, and rooms and we can work and also meet there, which is very important. [...] So it’s kind of a funny office.” (S2)

“...a place where you can work and chill at the same time. And that’s the main thing I think, that you have Fatboys here and it’s not only a pure working place. And therefore you like to come here.” (S4)

“It’s our office where we are working [...] Unfortunately it’s like that. [...] The tables make it more to a working environment so it’s just not just for chilling out. People don’t hang out there, people work here.” (S1)

See in figure 9 how the life inside the Design Loft looks like.

Evolution of the Design Loft in brief

“And then a lot of change because we really got a new place. [...] it’s really nice environment. So this was also a really good feeling because the last years the Design Lofts, or we called them PIP Offices, were not that nice.” (F1)

The building where Design Loft was located hosted also workplaces for architect students, student organizations such as BEST, and some other activities of TU Graz. PIP got the office in the 5th floor, a rooftop office on top of the building, and two rooms in the basement, which were to be transformed into workshop and prototyping rooms.

There are three rooms in the Loft (see the figure 10), in addition to kitchen and two bathrooms. As it is a rooftop Loft, the ceiling is tilted in all of the rooms. When we got to start developing the space in October, a lot of the old office furniture was there filling up the whole space: heavy tables for individual working, drawers, closets and chairs. The first thing was to evaluate what can be taken out, and what we want to use.

October was used for planning to see what will be needed to the Loft. We visited the university’s furniture storage a couple of times, and brought all whiteboards and pin boards we found to the Loft. As a result, all straight walls in the Loft were covered with boards that afforded drawing or pinning ideas and pictures to the wall. As soon as the students joined the course in



Figure 9: Photos of the Design Loft

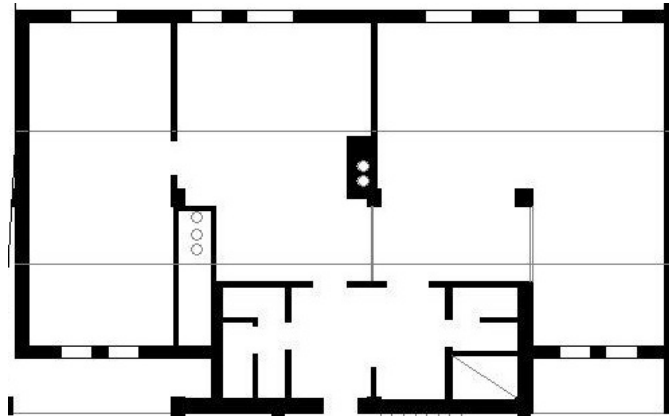


Figure 10: Blueprint of the Design Loft

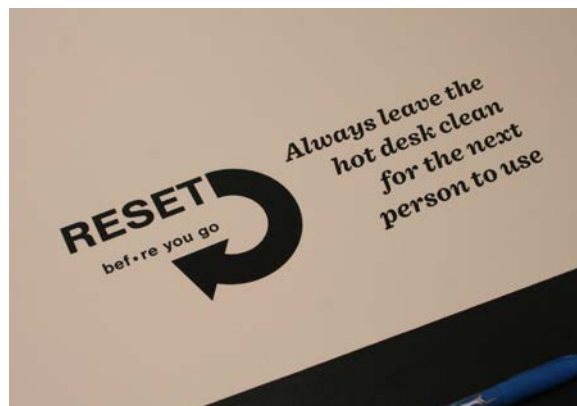
late October, we involved them to the redesigning project by organizing a space development workshop. This workshop was a great way to hear what the students would like to do in the space and how they see it. I will describe the workshop and its results more in detail later.

The space development workshop was a great way to involve the students and hear what they would like to do in the new space. After the workshop we equipped the Loft with necessary things, such as beanbags (colorful Fatboy chairs) and dishes. A colleague of mine from ADF came to organize a PD6 (product development in six hours) workshop for the students and brought vinyl stickers with her. This helped us to bring some visual communications and guidelines to the space, now everyone knew where you can find e.g. glasses or plates, just by looking at the picture on the doors in the kitchen (see figure 11). The stickers brought a totally new feeling and look to the Loft, and many people commented positively on them. When these new things were brought in, usually I was the one arranging and organizing things to their places, but the students helped me to e.g. assemble furniture any time they were available at the Loft. (From the field notes)

After the biggest changes had been made: stickers attached, and new furniture, dishes and material bought, we agreed to put bigger development on hold, and see how the space is used and observe what still could be needed. Even though the modifications and arrangements in the space were fairly incremental, the faculty, who had also seen the previous years of PIP, brought up in the interviews the change that the new space has brought to PIP:



Figure 11: Vinyl stickers are a great tool for visual communications



“I was here in June last year seeing the Design Loft, or let’s say the offices, and seeing it now it’s really a difference. What for me was really surprising was that it’s not that much stuff in here, which is new. [...] I don’t feel that it’s completely new everything and still it’s completely different feeling if you enter the Design Loft.” (F1)

“I think that was a big step forward for the project to give students that opportunity: nice atmosphere to work, also to learn in a nice atmosphere.” (F3)

One of the staff members also emphasized how she wants that the students take ownership of the space and make it their own while reflecting how the space has brought a change in the culture of PIP:

“...that they (the students) are a part of that and that they feel that without them nothing happens. [...] They are the ones who are actually doing the thing. [...] I want them that they act that this is their thing, so that means they protect also what they created. And it’s just a complete culture change.” (F5)

As mentioned in the research setting, there were some challenges and limitations in redesigning the space but they were solved with some creativity: The existing office furniture was rearranged, and used as storage for prototyping material, as personal storages for each of the teams, and as a place for e.g. dishes, coffee and tea. As one big closet was built inside the room in the middle, and hence was impossible to take out, the doors were partly covered with self-adhesive whiteboard paper to make more room for visual communication. In addition, as we were not able to paint the walls, we bought huge posters to bring color and life into the loft. Blackboard sticker was used to bring more writing surfaces also to the tilted walls. We even experimented with rolls under the tables – which made the heavy furniture easier to move around and arrange the space according to the feeling and need.

All in all, the space was rearranged to support different tasks and functions during the projects, such as individual working, team working, relaxing and prototyping. I summarized the ideas for the functions of the different rooms to the blueprint. The figure 12 shows the initial ideas and pictures of the final result.

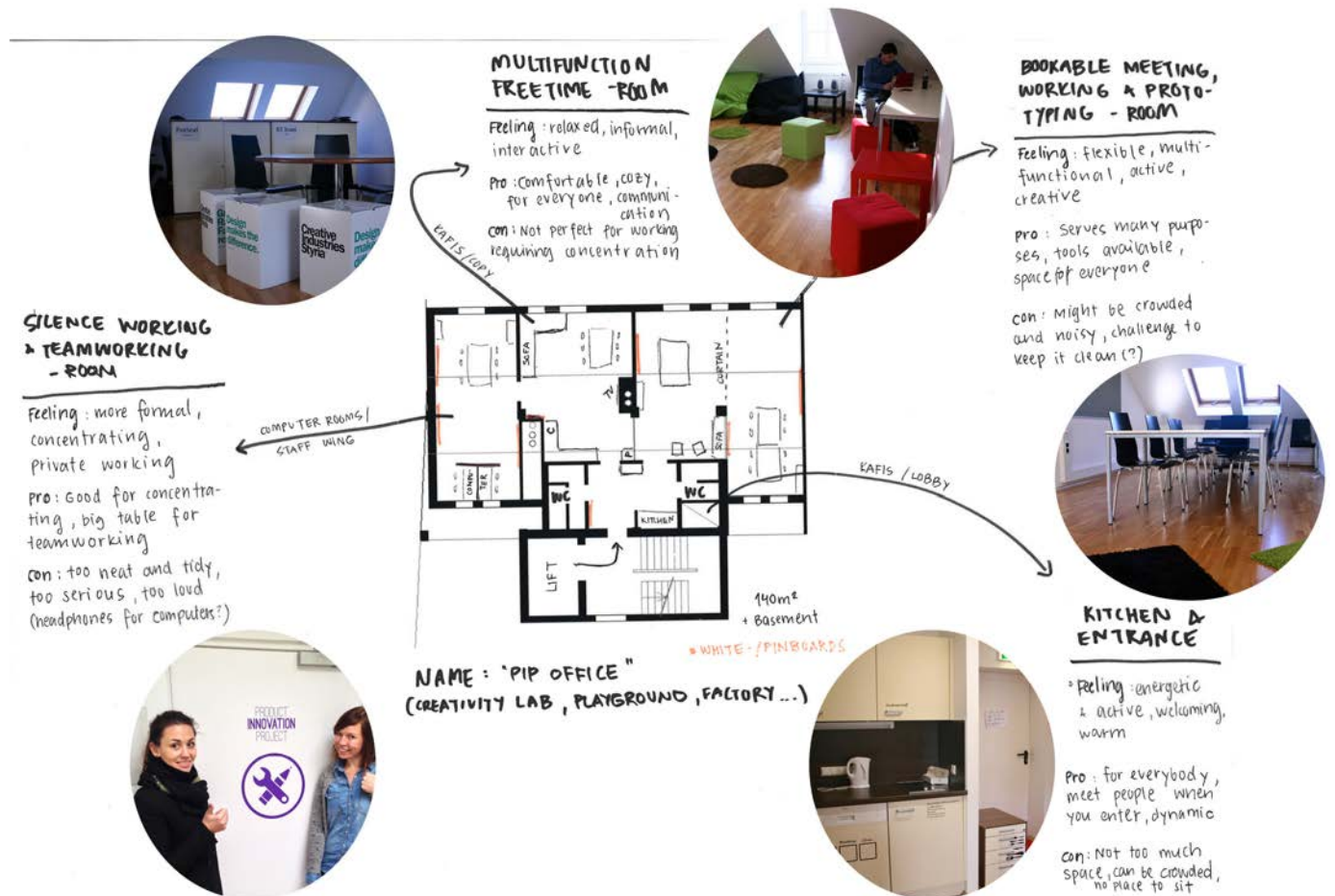


Figure 12: Initial ideas for the development of Design Loft, and photos of the final result

Space development workshop: user involvement

From the very beginning I knew that I want to organize a workshop together with the users of the space, and involve them to the development process. The voluntary space development workshop was mainly organized for the students to get inspiration how a nontraditional lecture space could look like, express their opinions, and also get already familiar with the space where they were going to work. The goal of the workshop was to 'Plan a comfortable and well-working all-the-time-developing environment which supports student's work'.

I prepared the two-hour workshop carefully with the help of several colleagues at ADF through Skype and email. 16 PIP students participated the workshop. None of the faculty members stayed for the whole time. The workshop consisted of four different phases:

- free ideation phase, where the students were able to go around the Loft and write on post-its what they would like to have in each room and stick the post-its to right places,
- an inspiration phase, where I showed pictures of nontraditional lecture rooms,
- an action phase, where the students were able to build on the first ideas, move the first ideas to new places, and use the inspiration they got from the pictures, and
- a reflection phase, where the students evaluated all the ideas in smaller groups and presented the concept of each room to others.

The functions for the rooms were given to the students in advance: a computer room for individual and team working with designated storage space for all teams, a common room for relaxing and socializing, a kitchen for cooking, and a big room for prototyping, events and meetings. The functions of the rooms were based on the needs that the students will have throughout their project in addition to the limitations of the physical space, e.g. there was only one room where the computers could be connected.

As the figure 13 shows, the students were really active and energetic throughout the workshop and they seemed to be having fun. As the facilitator I let their ideas flow freely, and only guided a bit towards the agreed functions of the spaces. As a result, I had a pile of post-its, and a long list of concrete suggestions, ideas, and wishes, which I summarized to support further actions. In the end of the workshop I asked all the students to mention one thing that they perceived as the most important. They mentioned several things related to e.g. comfort, participating the development, and to interaction.

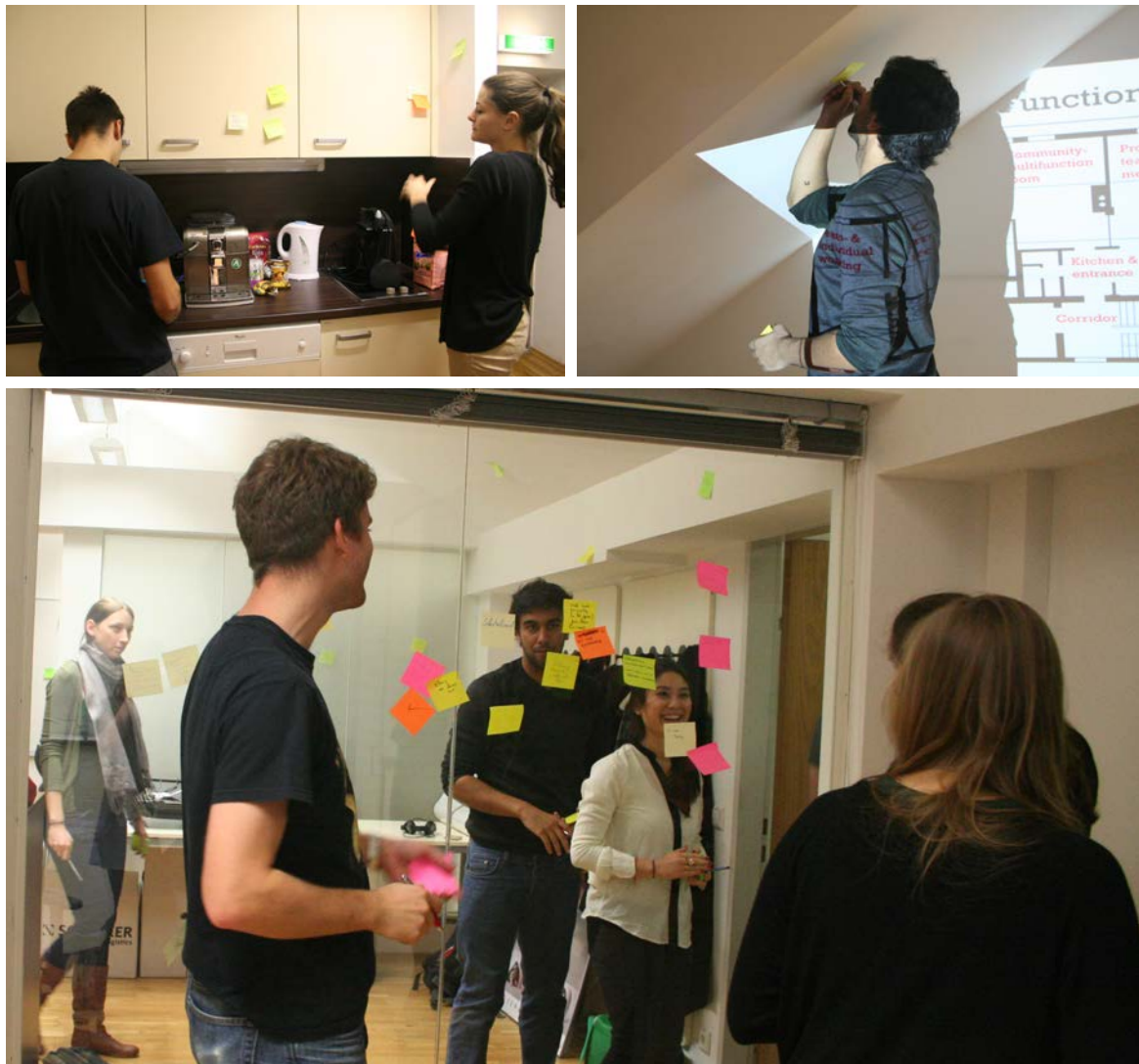


Figure 13: The space development workshop

The students seemed to enjoy the fact that they were able to participate to the planning process:

“And that we were part of building this, the office, that was nice.” (S4)

“... the PIP development workshop we had with you, this was also really cool [...] that we can also participate the development of it.” (S3)

Participating increased the feeling of ownership and got the students already integrated to the space:

“I liked it because then you feel a little bit that it’s also more your project and that you can also say that ok I’m working in this room where we, were part of it developing it. [...] you feel more like home.” (S3)

However, there was also frustration, that all the ideas did not realize, and some of the agreed actions did not take place due to university regulations and bureaucracy:

“...there (in the workshop) were some really nice ideas and if we now evaluate ok, what kind of ideas did we have, what was actually realized, not a lot of things happened.” (S1)

When reflecting on the workshop, there are a few things I would do differently if I would facilitate such a workshop again:

- Having also the staff members to participate the full workshop in order to get to interact with the students, get to know the space, and see the ideas that the students have.
- Being fully aware what are all the things that can be accomplished so that all agreed actions can be taken forward. In this case the students agreed to be helping with painting the walls, but after several investigations, painting turned out to be impossible in the university facility. Here the students’ enthusiasm and commitment was wasted.

This workshop was the basis for many concrete solutions, ways of working and practices that were realized and introduced in the Design Loft.

Attractive and comfortable space is inviting

Both the students and the faculty brought up in the interviews how a space that affords everything from working to fun, and from individual working to interaction is a place where people want to spend time. Design Loft was found to be colorful and comfortable, which makes the people want to come to the Loft and spend time there.

“...if you have an office with small PC, small room and desk and so much work to do I think you don’t like to go there [...] nearly every time I came here there was someone

here and I could talk a little bit with them. [...] I think it's more comfortable to work here than in an office at the institute or something like that.” (S3)

“So it was not like everybody wanted to be there (referring to former PIP working spaces), but here it started for the first time that everybody wanted to be here, in the Design Loft. So this was really nice.” (F1)

“...typically you go to the university, you work there and then you go home as soon as possible. But if you come here (the Design Loft) you are working and having a beer and that's another type of working.” (S4)

The comfortable environment was not the only reason to spend time at the Loft, other people were also mentioned as a positive addition in the Loft:

“I came sometimes here to work on my master's thesis, not only for PIP but just because it's nice here because I can drink coffee and there are other people.” (S4)

The fact that Loft also affords taking a break and relaxing, was seen as a great benefit:

“...when I'm a bit tired or I don't really want to work here, just come here [...] I just lay down, it's very good for resting. And I also sometimes just lay on the pillows think maybe also on other projects that are really technical realization [...] it's really good for inspiration.” (S2)

The kitchen was also found to be a great advantage. Students working with experiential courses such as PIP tend to get motivated and spend a lot of time on the project. The kitchen makes it possible for individual students to cook lunch while working, and also to make dinner together with the whole team.

“I have here my lunch so I don't have to go home or somewhere to buy something, I can just put in the microwave and eat it here and during I can work or making some private stuff. So it's a really good way, and a good reason to stay here and be here.” (S2)

The physical space, being something very tangible, was used also as a powerful showcase, to tell and show what PIP is all about. Showcasing the space to important people can also create new opportunities for development.

“...there are great opportunities to use the space, to show it to other people. [...] inviting the president of the university for half an hour that he sees what's going on. If he sees that with his eyes and brings some industry people, that might be a good idea.” (F5)

“I had some friends of mine coming here and I was showing them these facilities and they were fascinated, they were like ‘oh my good, this is a huge space’. A friend of mine said he would be here every single weekend. And I have to agree with them, I like to be here and just by working, not only on the project but you can work for your studies.”
(S1)

This student however mentioned how the Design Loft was not used as much by the students as it could have been used. The students had not adopted it fully as their second home:

“...well this never happened in the teams that, I think it’s more the agreeing to that ok, this is now a second home. What you suggested in the beginning, make it your second home.” (S1)

Access to the Design Loft

As the interviews revealed, and the researcher’s observations confirm, the Loft was not used as much as it was expected. There were people around always before agreed meetings, lectures, or events, but on other times usually just the project managers or few students were using the space. The two reasons that come up are the busy schedules of both the students and the faculty, which prevents them just to hang around and spend time at the Loft, and the other, the one which had a bigger impact on the accessibility, was the barrier to access: not everyone had key to the Design Loft. Each team got only 2-3 keys to share with the whole team of approximately 10 students.

“I think not all of the people are using this place like I [...] people who are here for Erasmus (student exchange semester), they are more often here and they really working and using this place, but the people, the ordinary students are not. And I think it’s connected to the time schedule in the university and other private life things...” (S2)

“It’s also this key issue that could be solved for next year. Because now we have only three keys in the team and then we have to change and some people would like to come here for some minutes but they can’t because they don’t have a key ... Yeah, this 24 hours open is a little bit... not really 24 hours.” (S4)

In the space development workshop there were several creative ideas how to solve the access issue – everything from special key locker outside of the Loft to various communication methods to know if someone is in the Loft or not. Giving a free access to the space was not a trivial thing to do, and there were some concerns about the security from the faculty’s side:

“So we have this open door policy [...] we don’t track who is coming in and coming out. We were thinking about mounting an IT security thing, [...] but we didn’t install it yet. [...] And at the end we can say nobody stole something, everybody was committed and

that's quite something'. If we can create this kind of a culture within a lecture, within a body of student, I think that's very special and it needs lots of work that students act like this.” (F5)

The experiment to not track the people coming in and out proved to be worth while and the trust was earned. The students seemed to respect and appreciate the space, and take good care of it.

One of the biggest things in the beginning, when setting up a learning environment like this, is to find out how to enable access to all the users. The space is obviously not used to its full potential and the users can not even start to learn using the space, if they can not even get in at the first place.

Flexible space can enable many activities

Flexibility was also the design driver for developing the Design Loft. To get the most out of the 100m² the goal was to redesign a space where the students could work alone or in their teams, prototype, ideate, relax, have fun, and most importantly, everyone would feel like they belong and have a place.

I remember hearing a comment from one of the students how “it is so convenient that there are three rooms at the new space for the PIP course and there are three teams, one room for each team”. It would surely be important to provide a personalized area for each of the teams, but it is more important to create a space for everyone, a space that supports interaction and spending time together, and enable different kinds of activities, not just designate one room for one team. (From the field notes)

As a result, the space was used for several activities, e.g. for workshops. One student described how the Loft supported a workshop they organized:

“TRIZ workshop what we had here, I think for that it was a really good place we had big room and we could really be creative and brainstorming and some ideas which I think in a room, in the university, in a normal classroom it's would not be that fun because you can't use any materials and everything...” (S2)

Flexibility can increase the usage rate of the spaces, since the space can be always transformed to support a certain activity. If the Design Loft would have been divided to serve three teams separately in three different rooms, it would have not enabled larger workshops, prototyping activities, events, or lectures to take place there. As an example, the Big Bang was the only room, which could be reserved beforehand, and it was mostly used for team meetings and lectures (see figure 14). If the number of students were to increase in the following years, the three rooms would not be sufficient anymore. Thus, the multipurpose and nonterritorial nature of all the spaces make it possible to host also more than three teams in the future.



Figure 14: Lecture in the Big Bang

The most flexible space of the Loft was the heart of the space, the social meeting place, a shared common room called the Nest. The Nest was not mainly meant for team meetings, and especially not to be reserved just for one team, but as a flexible space it was designed to afford several purposes for being there – everything from relaxing to working.

One Friday morning I came to the Design Loft and saw one of the student teams having a meeting and a Skype call with their remote member in the Nest. This was such a great moment for me, to see how the students were embracing the possibilities of the Loft by organizing a relaxed and fun team meeting in the common space! (see figure 15) (From the field notes)



Figure 15: One of the PIP teams having a team meeting in the Nest

5.2 SOCIAL SPACE: SPACE INCREASING INTERACTION

In addition to the physical elements such as colorful beanbags, tables with rolls and comfortable chairs, a space that is redesigned to support interaction can bring people together, and as its best increase the interaction between the users of the space. It is a place for people to meet, to cause accidental encounters, and stir inspiring conversations.

"...you just come here (Design Loft) and have a coffee with someone, it would be great for me if you come here and meet someone and talk to them, 'Ok, I'll now do my work a bit and then you talk again'." (S1)

Value of being present in face-to-face interaction

All the data for this study, both the observations and the interviews, emphasize the value of interaction, and having people around you. Especially people who are available, and who can help and support your work. In the interviews it came clear that the students would like to have more connection to the PIP staff in order to get more information on the upcoming deadlines, events, and course practicalities, and that they used all the situations when they saw the staff members in the Loft for asking about practicalities. In addition, the students hoped to have more peer students present at the Loft, to have more life inside. The fact that the PIP staff did not spend that much time at the Loft, was perceived as ignorance towards the project.

"I liked that very much that when I came here that people were here. Before, at the end of the year you were here and you were kind of the lead person or something and also our communication partner to the institute, and after this, in January, February there was nothing or, bad communication and no really meetings. For example today (having a meeting about the gala preparations), this was again very nice and many people meet together and we didn't have this the last weeks or months." (S4)

"I think that basically for the university side they, now I don't have the feeling that they take care of the project. Of course our project supervisors, but besides them no contact to the university. [...] I don't see anybody (at the Design Loft)." (S1)

Despite the untraditional instructions to behave and interact, the Design Loft was not separated from the larger context. The prevailing culture in people's minds was still the university culture – the way people are used to interact, work, and behave in a university environment. The fact that the faculty is officially grading the students was a barrier for open communication:

"...the guys from the institute are also really nice and if you need help they'll always help you but I don't know if it's just for me but anyway you have the feeling it's more a little bit of distance. Since they give you the grades and they are the responsible people for this project. I think it was always that you (referring to the action researcher) talked a

little bit in a different way with the people from the institute than with you because with you can also talk oh yeah, how was your weekend or anything like that and you don't do this with the institute. And also if we needed help or anything you always were there..."
(S3)

Sometimes the students went to the institute if they needed some information, since the faculty was not present at the Loft and they could not get the information they needed:

"...they (the students) have the feeling that if they come (to the Design Loft), there is always someone you can ask, and sometimes this might be the only reason they come on that day but they come. Otherwise they won't. [...] they (the students) have to come here (to the institute), otherwise he would come to the Loft." (F2)

Also the staff members noticed how their presence at the Loft was noticed and the students utilized the situation for asking different kinds of questions – the barrier to ask a small but important question face-to-face is a lot smaller than calling someone. They also mentioned how seeing the students, and being at the Loft was a reminder for them to talk about important topics related to the course. The saying, out of sight, out of mind, is more than suitable to this context, where the PIP staff clearly focused on the course related things when being at the Loft, and seeing the people triggered communication and information sharing.

"The students, if they see us and we are here, they immediately ask [...] 'do we have a second, we have to go to the workshop, I'll show you our prototype and I want to ask if you know where we can get this part'. So it's just easier because calling me and asking do you know where I can get these parts, there is a barrier a little bit so they think they need some more reasons to call me. But if I'm already here and just talking to second to me, that's easy." (F1)

"I think it's very important and you need to be present at the office. You need the physical contact to the students. Because when you meet them and ask them 'do you have problems' of course they say 'yeah, ok that's the problem' but when you don't meet them they never write you an email or call you, they try it on their own. It's easier for them to get in contact." (F3)

As the interviews reveal, the students only contacted the staff members if they had a specific question in mind, but they did not ask for help with things that seemed unimportant or not that urgent. I noticed the same phenomenon of the power of physical proximity when spending time at the Design Loft:

Every time I was working in the Loft, the students came to me and asked several questions such as 'how long do we have time for the Halfway show presentation', or 'what would you do in the teambuilding event'. The questions were related to small practicalities,

general experiences about product development, or to the course schedules – usually things that they did not consider urgent and did not want to contact their project supervisor or other faculty members per email.

To support these unplanned interactions to happen more frequently and communicate more openly who is currently at the Design Loft, we set up a Google calendar, where both the students and the staff members could mark whenever they wanted to book the meeting room Big Bang for working. For the staff I introduced this as the ‘Out of Office - in PIP Loft’ –concept, and suggested that if they would spend some time at the Loft it would be a great way to see what the students are doing, change working environment, and help the students. (From the field notes)

This calendar was not only a reservation system for the Big Bang, but also a way to communicate who was going to be in the Loft, and was meant to lower the barrier for the students to come and talk to a staff member whenever they had small practical questions or other concerns. Being present was found to be valuable and beneficial, but still I noticed that this encouragement for the staff to spend time at the Loft did not work as planned, and they did not find opportunities to spend time at the Loft:

When talking about working and spending time in the Loft with the staff members, it became clear that it was very inconvenient for them: since the Loft was in another building they would need to carry all the papers and books they needed. At the institute they also had the opportunity to chat with other colleagues, and in the Loft they would be more separated from the faculty. (From the field notes)

“...unfortunately I’m not really working here (the Design Loft) [...] I need lot of contact to other colleagues so I need to call them fast or some of them are sitting next to me or there is a new colleague sitting in my room now in the office so we can talk fast and easily. And sometimes I feel I’m a little bit more efficient in my office compared to here (the Design Loft) [...] and I don’t want to carry it (work materials) all to the Design Loft. So that’s a little bit problematic.” (F1)

As the Loft was designed for the students, and everyone emphasized the value of the new space for the students, the faculty never got the feeling that the place could be also for them and found it comfortable to work there. It seems that it was easier to introduce the Loft for the new students, who entered the course not having pre-learned ways of working and assumptions of the working place, but in order to integrate the faculty to the Loft, their needs and working styles should have been more taken into account. Clearly, the staff was also not rewarded for taking time to support and coach the students, since they had pressures to accomplish their other tasks.

“I’m not really used to being in a creative environment, just sitting on a Fatboy with

my laptop and working. That's not what I'm...not used to it. [...] the barrier to walk 10 minutes and be here. And thinking that ok, maybe I'm not also efficient here. That's just barrier in the brain.” (F1)

Even though the faculty should have been taken more into account when developing the space, in the first stage the main priority of the space was to support the students' work and accommodate the PIP teams.

Events and activities bring people together

“No encounters occur if no one is spending time in the Loft” (said by one of the staff members, from the field notes)

Events, gatherings and activities are a great way to bring people together, and give a reason to come a certain place. Informal gatherings can result to new project ideas and unexpected outcomes, as people meet without planning to meet, and discuss with each other. Even though Loft was described as comfortable and positively different kind of place to be and work, these features still were not sufficient to bring e.g. the staff members frequently to the Loft. To change this we introduced some events also to the Loft, to enhance the feeling of togetherness and increase information sharing especially between the students and the faculty, and across the PIP teams.

Among others we organized an informal PIP Breakfast at the Loft where we invited all the students, institute faculty, and PIP students from previous years. The breakfast was a great way to get the institute faculty and PIP alumni to visit the newly designed Loft for the first time. As it can be seen from the figure 16, during the breakfast Design Loft was bubbling with conversations and people having fun in an informal gathering.



Figure 16: PIP community breakfast

The breakfast and its value was also mentioned few months later in the interviews:

“The breakfast. That was quite good, I liked that. [...] it was come-together and you have the chance to talk about the whole PIP related stuff. We don’t actually have that really much so why it was really good because we were at the place and someone could say ‘hey look at there, can we do there something’.” (F2)

“It’s also a little bit chance to talk with the other teams, how is it going in your projects, do you also have the problem that this and this... I think it’s also good that the communications is still going on with the teams and not only within the team.” (S3)

I also witnessed how the breakfast, and an accidental encounter that happened during it, resulted into a thesis project:

About a week after the breakfast I was working late at the Design Loft. One of the students was there with me and she told me what had happened during the breakfast: She had wanted to have a chat about her master’s thesis with the institute professor, since she was planning to start writing it. However, the professor is busy and she had not booked a meeting with her. It turned out, that at the breakfast she all of a sudden had a chance to talk with the professor, and she used the opportunity to share her interests regarding doing the master’s thesis at the institute. The professor knew the student but did not know that she was also doing PIP. The professor immediately gave her advice how to proceed, and was also glad that the connection happened. (From the field diary)

Later in the fall, we organized another common event, PIP Christmas celebration, for all the PIP stakeholders. The value of these events, activities not related to the projects directly, was mentioned several times by the students and the staff in the interviews.

“...this just chatting has the opportunity to find someone who helps me solving a problem I’m not able to do. Help me to find another solution. So I think this communication, knowing what others do leads to many positive following effects.” (F4)

“The meetings outside of the project. You forget about the project and you are there to meet the other people within your team, outside of your team, get familiar with them. And talk to them, get closer, make friends. Find common interests.” (S1)

Also, the lack of events in the spring term was noticed especially from the point of view that there are no reasons for everyone to get together, which reduces the opportunities for interacting and chatting with other people:

“...the communication between the teams and the team members is, yeah would be better. And there are a lot of people I would say I could talk to but I don't really have the chance because there are no events.” (S1)

The value of coming together was also mentioned from the point of view that it is easier to work and communicate with the people you know. Familiarity seemed to increase togetherness and team cohesion; when you have met someone, it is easier and more comfortable to work together, ask questions, and share the working spaces.

“Our team building was really cool [...] get to know all the people. [...] Then if you meet him next time at the office, you know him. It's not a stranger.” (S4)

“...for me it is important to just get comfortable with the other people in here since I can, like I said before, if I come in here and I have three teams in here and I feel like they are all strangers, you don't feel comfortable.” (S1)

Informal events such as the breakfast or the Christmas celebration seemed to cause good discussions, but also the other events, such as guest lecturers coming to the Loft, extended the learning outside of the traditional classroom.

“...it was especially before and after the event that these people were standing around, having some coffee, having maybe some cookies, and in lecture classroom it's coming in, sitting down, lecture, going home. And here they were talking before, and in the break and afterwards [...] there you talk also really important stuff, so it's not only the lecture.” (F1)

One of the students described how the Design Loft was a place for working with the PIP course but also a meeting point. However, there was still a lot of potential unused in the Loft, and the fact that people know each other, feel comfortable around one another, could increase the usage rate of the Loft:

“And if you have that (connection) between the teams already then people would stay here just to study, you know you can study for you university and just, I want to meet people, do something, get more familiar with the place. Maybe those events that they come more often, once a week. [...] you know we are almost 30 people and when I come here most of the time no one else is here.” (S1)

In addition to the fun and informal gatherings, the Loft also enabled the students to prototype and conduct user testing. One of the teams brought half of a car to the workshop spaces in the basement to see what is inside and how they could use the frame for prototyping. Another team utilized the space and the people, and organized a juicing party, where they were able to observe how people use certain devices and get insight for their project. The Loft was a neutral setting

to organize this kind of prototyping, since it was available, there was all necessary equipment available, enough space, and people who were willing to help.

“...they (one of the teams) placed tables there and lot of mixers like side juice press and blender and lot of stuff and lots of fruits and vegetables and they printed out recipes [...] and the task was that everything was free, we could eat and drink everything but we had to prepare the juice on our own. And they recorded us because they were curious how people are using these kitchen appliances and it was just, they made some research but it was really good and very funny [...] it was not like prototyping and working on the project but still it was a bit connected to the project of one of the teams and yeah, I feel like motivated to help the other team but also just having fun during the time and that was a good.” (S2)

Magnet space – enabling planned coincidences

We knew that there are not going to be several unexpected guests visiting the Design Loft due to its location and purpose, but it was still important to create a nonterritorial common meeting space for the PIP stakeholders, where both the students from different teams and the staff members could meet, chat, and spend time. The Nest was the main magnet space, accommodating the printer and the coffee machine, and it was mostly used for the informal and fun gatherings. The whole Loft, and the relaxing Nest with the Fatboy beanbags especially, afforded to combine work and fun, as one of the students described it:

“...drinking beer during or after the meeting and talking about the project and a bit resting with beer. [...] you meet some people here, drinking a bit and thinking about crazy ideas, which are related to the project and you can find out some good things.” (S2)

The informal gatherings are not only fun and increased the togetherness of the group, but can bring valuable insight and ideas to the project.

“...bring together the different teams, the different people and bring them talking together, talking about the same problems [...] without those events sometimes they never talk to each other.” (F3)

See photos of the breakfast and the Christmas celebration on the following page (figure 17). These pictures show how the events created opportunities to interact with the students, guest lecturers, professors, and the teaching staff in a relaxed and informal setting.



Figure 17: Photos of the community events organized at the Design Loft

5.3 MENTAL SPACE: AN OPPORTUNITY FOR NEW PRACTICES AND WAYS OF WORKING

“They (the students) are not here for the ECTS, its something else you can’t see. I can see it in the faces of these people, there is great spirit!” (A comment from a professor in TU Graz who was visiting in the PIP Christmas celebration, from the field notes).

Different mental state of a learning space cannot be reached without clear physical changes and the interaction taking place, the people in the space. The physical changes in the room are something visible and many people could see how we attached stickers on the existing tables saying ‘Hot desk – reset after use’, brought in several whiteboards, or had colorful Fatboy beanbags in the Nest. These visual and concrete elements however do not change the atmosphere of the space alone. The space needs people, who are offered the opportunity to use the space in a new way, and the final touch is the mindset of those people, what the space is affording and able to communicate. The users of the space create new ways of working, behaving, and interacting, which are different to those learned in the traditional lecture rooms.

Even though the space used to be a traditional office, with the incremental changes in the physical environment, the new spirit, enthusiasm, and feeling of the space, the atmosphere, was clearly different what it had been before, and also different compared to traditional lecture rooms.

“I like the atmosphere in the office, that we have here a place to work and that the meetings are not that official, rather informal and also that you can eat during the meetings.” (S4)

“...it’s something completely different in Austrian universities and that’s why. It doesn’t just look different but it is different. The feeling you have when you are there, you are just like ‘oh I have to sit and just look and don’t move’.” (F2)

Here I will discuss more about the rules and ways of working of the Design Loft that formed the ‘spirit’ and ‘culture’ of the Loft. The word *mienttila* is Finnish and usually translated as *mindset*, but in this case a better translation would be the direct one, *the space of mind*. It is a great word to describe what happened with the development of the physical space in the Loft – the space in the minds of people expanded and afforded new practices and ways of working.

Design Loft – tabula rasa

Design Loft was a totally new space in the context of TU Graz and PIP course. There were no schemas, norms, or pre-learned rules how to work there, since from its physical appearance it did not resemble a traditional lecture room. Thus, the learned norms and rules of a traditional

classroom did not apply. This gave us the wonderful opportunity to introduce new ways of working, new norms and rules to the space, which was like an empty book that needed to be filled.

Some of the ways of working came directly from Aalto Design Factory, such as the need for a common magnet space, the Hugging Point sticker attached to the floor (see figure 18), and the rotating shift of the responsibility to look after the space. Many ways of working I, as the action researcher, definitely introduced through my example, such as filling the washing machine, and cleaning up after I was done working, so that the hot desk would be available on the next day for the next person to use.

“...you actually [...] showed us how can we really work here, like in a workplace but still it’s some kind of funny workplace. Just to involve fun and working and combining the benefits and I think it was quite good and also what you made, organizing this whole area and this mentality that which still works for example like this the rules and to make everything [...] that we clean up after we finish the work and we need to be able to work three teams in actually one building, in one place [...] you predefined for us the preconditions. [...] Like the mentality of the whole place.” (S2)

It seemed to be valuable that there is a person setting an example and introducing certain behavior in the space. As a person coming from outside, not being embedded in the prevailing university culture in Austria, I was not aware of all the norms and rules, and thus was able to be out-of-place and behave out of the norms. At times I could see, that my jester behavior was clearly confusing, but also observed with great interest.



Figure 18: The Hugging Point

Official rules give a permission to act differently

*“Legitimizing a new way of working: ...It’s persistence, persistence and persistence.”
(Reay et al., 2006, p. 984).*

At the same time with the physical changes in the space, new rules and ways of working were introduced to the Loft. It is hard to break the rules if you do not know what the rules are, and it is hard to act differently if you are used to a certain type of working, and are not given a safe environment and instructions what to do differently. This is why the new rules in the Design Loft were made explicit and agreed upon together. The general rules, i.e. ways of working, (see figure 19) for the space were printed as a poster to the Loft entrance to have them as a visual reminder for the users of the space, and as instructions for those who come to the Loft for the first time.

This is how we do it PIP Loft ways of working

*Grab some cozy slippers and
take off your shoes*

*Your mother doesn’t work here,
clean up your own mess*

Safety comes first

Get to know the Hugging Point

Have fun and show it

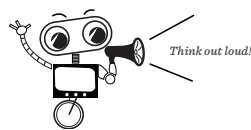


Figure 19: Guide to the Design Loft ways of working

In addition to these common ways of working, a more detailed instruction of the practicalities in the Loft was shared with the students. These included e.g. instructions how to keep the kitchen clean, how to keep up with the PIP weeks that share the responsibility between the teams to buy coffee, tea, and beer to the Loft, and how to store prototypes and team’s materials. These instructions were formed based on the discussions and wishes that came out in the space development workshop, from the literature and studies, from the practices from the university’s side, as well as influenced by the experiences from working at ADF.

These explicit rules, instructions, and agreed ways of working were the building blocks for the

new PIP environment, the Design Loft. The rules gave a reason to be a bit ‘out-of-place’ and experiment with new ways of working. Like one of the faculty members defined, the details and small things make the whole:

“I think it’s the details maybe, so it’s flexible, so it’s not that strict [...] the pictures on the wall, that’s nice; you get a good feeling because you see the people who are here normally. [...] And the coffee machine, you recognize immediately I have to pay 50snt and then I can take a coffee [...] Or you take a beer if you want to. And it’s everywhere, it’s described the rules [...] you know immediately where to find what and what are the rules and what to do.” (F1)

One of the rules in the Loft was the agreement to use only English when working in the Loft. Most of the students spoke German, but since there were also a few exchange students in the teams, the agreement was to communicate in a language, which everyone understands.

We had a fine for anyone who was caught when speaking German – you had to pay 0,50 euros to the piggy bank in the Loft. The money was used to buy coffee, beer and other necessities to the Design Loft. It was interesting to observe what the language choice did for the interaction – it seemed like English made us all more equal, as the students could use the ‘you’ form with their sponsors and faculty, which seemed more informal and reduced the hierarchies, compared to the formal way in German, where everyone should address each other with last names and official forms, if they had not agreed to communicate on first name basis. (From the field notes)

One of the faculty members also brought this topic up in the interview:

“I like that everybody speaks English there (in the Design Loft), also the Austrians, it’s more easy for them to talk English, I have never seen that before. That’s interesting, it’s like you can feel the international culture there, even when half of the people, or more than half of the people are Austrians. That’s pretty cool.” (F5)

Keep calm and keep the door open

Another example of the rules was the agreement to keep the Nest door open (see figure 20). In nonterritorial offices people do not have designated working areas and usually working happens in a shared space. As a shared working space, and a place for interaction, the Design Loft, and especially the Nest, was not meant to be a place for closed doors and separated offices. The open door between the kitchen and the Nest was supposed to convey a feeling of openness and warmth, as it invites anyone to access the room. However, I observed how regardless of the explicit sign on the door, people kept closing the door:

I was sitting in the Nest, just working alone on my computer, as one of the teams was

having a team meeting in the Big Bang room. The door between the Nest and the kitchen was open, and some students were coming and going, while working in the third room. One person came out from the meeting in the Big Bang to speak briefly on the phone in the kitchen, and she immediately closed the door to the Nest. After she was finished with the call, she returned to the meeting and I got up and opened the door again. Soon after, the team was having a break, and they came to the Nest to get some coffee. As soon as they returned to their meeting, they started closing the door behind them, but I asked them to leave it open. It seems like closing doors was a habit, a way to communicate a need for privacy, and a way to give privacy to someone. With the explicit sign on the door, by requests to keep the door open, and by showing an example and opening the door every time someone had closed it, I tried to communicate what is allowed in the space, and make sure, that anyone coming to the Loft would have a feeling that they can always enter at least the Nest if other rooms were been used. (From the field notes)

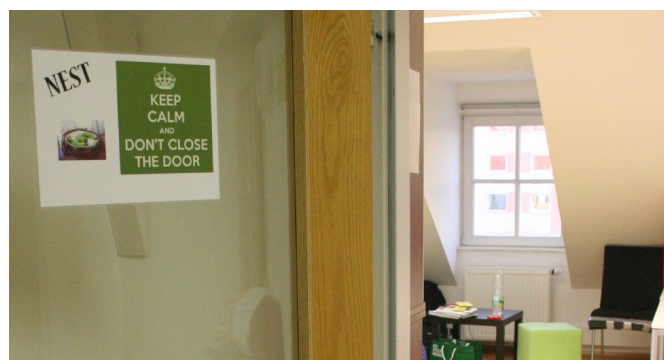


Figure 20: The sign: ‘Keep calm and don’t close the door’ on the Nest door

Hence, it was important that the door was open, so that the people would have a feeling that they can just come in and use the space. The open door was an invitation to walk in, a closed door communicated privacy and distance. Observing and researching the meanings given and practices related to closed and open doors would be a very interesting further research topic.

Proudly wearing the colorful slippers

Third example of an explicit rule is the rule to take off shoes when entering the Design Loft:

One of the staff members told me that the students are laughing at her since she is usually wearing a suit and putting some slippers on when she is at the Loft. She replied only: “But these are my shoes, I have to wear them.” (From the field notes)

This conversation shows how the rule to take off shoes, and put on the cozy slippers available for everyone at the Loft, allowed this person to do something she would not normally do. In the Loft wearing the slippers became the norm, as e.g. in the institute I never saw anyone walking around without their shoes on. One of the faculty members described how the mentality of the Loft afforded different kind of behavior and even appearance in the events and gatherings:

“...it’s an event where you talk easily to all kinds of people who are there, in an easy way, not with tie and a suit.” (F5)

Loft, as an informal environment allowed people also dress and act informally without making a fool out of himself or herself. The rules of the Loft helped to break the prevailing rules and norms in the university environment. They were kind of rules to break the rules:

“I think there were high officials, guests here who might have never before worn pink shoes at meetings. I think that’s something, it’s a small sign but I think it was important. When I think at the Christmas party, I think that was this kind of event [...] I think it’s obvious step to do something, which you thought first that it’s completely crazy, but then you find out ‘it’s ok’, it doesn’t hurt [...] I think they enjoyed it, they felt comfortable in the way people were acting here. Maybe especially because it wasn’t their usual way of working together.” (F4)

People taking ownership of the practices

The rules guide people’s behavior and become at some point the norm, usual way of working, thus shared practices. These practices, such as who should empty the dishwasher, however are in a constant negotiation – which should be preserved and continued, and which should be changed. One of the students told how after using the space for a while, the students had agreed on some new practices.

“We changed some things, like for example the list, where to put money in [...]. I think the responsibility for beer and milk was preserved, that’s still working good. That’s really important. Because if you come here, you expect that beer and milk is here if you want to have a coffee or something. That we reserve our rooms, not everybody is writing when he is here but if we have the big meetings it’s in the calendar. So the calendar works.” (S4)

This shows wonderful ownership of the space, how the students wanted to make sure that the practical things, that affect their working in the Loft, run smoothly. If something does not work, a new practice is suggested and experimented. In a space such as Design Loft, where there is no single assigned person to take care of the space, but instead the responsibility is shared and students are the main users, it is up to the whole community to agree on the ways of working. No explicit rules and instructions on the wall are as powerful as routines, and the users of the space in the end define the ways of working and interacting in the space, through the daily interactions and activities they practice.

The Design Loft, as a place for new mentality and approaches is however not easily separated from the attitudes and norms people are used to. The faculty had a strong perception of the places where lectures can take place and how a classroom should look like. Clearly spaces such

as the Design Loft are not suitable for all kinds of working, but the comment clearly shows how the new environments are being constantly compared to the ones to which we are used to, and it is not that easy to start taking ownership of the new practices:

“It’s (Design Loft) maybe not the perfect location for lecture, like we are used to it, because we are used to have rows with seats and tables, so really strict but that’s how the technicians are working...” (F1)

Hence, Design Loft is valued as a perfect different kind of environment for interactive and experiential learning. It would be interesting to reflect on those habits and traditions people are used to, and see opportunities to change them with the help of the new space:

“But I think it’s a perfect environment if somebody is standing here at the Design Loft and doing a lecture, it’s more creative, it’s more open, it’s not that strict that nobody has to stick to the rules. And here it’s a little bit open. That’s what I really like and that’s the reason why we really would try to do all the lectures here.” (F1)

A place for feeling and thinking

“...in this environment the students feel comfortable and then they are more open, can discuss easily and then, that’s the environment they need I think, because to be creative you have to feel comfortable. If you were sitting on a classroom row by row then the creative process will not flow of course because it’s really difficult [...] Everybody who is coming here feels immediately I can say whatever I want, it’s open, nobody will criticize.” (F1)

It is important that the people creating a new environment do not criticize each other for the new behavior, e.g. for chatting over a cup of coffee, having a beer while working, or wearing funny slippers. These activities need to be encouraged and appreciated, since these attitudes and approaches create the feeling of the space. In Design Loft it was very important that everyone felt that they belong there, that they are doing the right things, they can have fun, and they will not be criticized of the activities they do.

“I’m glad I have a team where we can also have fun in the meetings. It’s not a special event, it’s more that nearly every time we are here somebody of our team says something stupid and then we all have a little bit of fun.” (S3)

It seems like this new type of working and the Loft as a new environment, where everyone could express their opinions and emotions freely, was more something of a surprise for the faculty than for the students. In the interviews the emphasis on creativity, on openness, and permission to be who you are, came more strongly up by the faculty than the students. The students seemed to have interpreted the affordances of the Loft, since they were having fun,

laughing, making jokes, and sometimes also having arguments, and not worrying if it is allowed or appropriate.

“I just like the way take out the old stuff and put some creative stuff and you have, I don’t know if I’m there I have the feeling I can do something, I can create something. ... Especially me creating ideas and being open minded.” (F2)

Finally, the table 3 summarizes the interview topics presented in the previous chapters.

	Physical space, the Design Loft	Space development workshop: user involvement	Attractive and comfortable space is inviting
STUDENTS	Place for the teams to work on the projects, relax, and spend time, e.g. in game nights and gatherings. The students felt that the Loft could be used even more, especially for spending time together and just hanging around. One of the interviewees described the Design Loft as a 'funny office'.	Mentioned that it was inspiring and important to be a part of the development process of the space. Being involved increased the feeling of ownership and made the Loft feel like a home. However, there was also frustration that not all the ideas and agreed actions realized due to challenges with the university regulations.	Loft inspires you and invites to spend time there, since it affords both working and relaxing. Other people are also a reason to come to the Loft when even working with non PIP related tasks. The kitchen makes it possible to prepare lunch or dinner, and the flexible nature makes it possible to use the Big Bang room e.g. for a lecture, workshop, prototyping or meeting.
FACULTY	Emphasized the change in practices and feeling that happened with the new space compared to the earlier PIP working places. Felt that Loft enables creative work, freetime activities, and work. The untraditional, alternative and different nature of the work environment is also mentioned many times. Loft is thought to be a place for the students, and not so much for the faculty.	Space development workshop was not mentioned at all, which is no surprise, since even though the faculty was aware of the workshop they did not participate in it.	Felt like the Loft is an attractive working place and that it can be used to showcase PIP course. Surprised how the space can look and feel so different with very minor changes. The Loft is a physical manifestation of the PIP spirit and activities. The physical space also communicates different rules compared to a traditional lecture room, hence it is not seen to be suitable for a traditional lecture but affording different kind on learning.

	Value of being present in face-to-face interaction	Events and activities bring people together	Mental space, an opportunity for new practices and ways of working
STUDENTS	Practical challenges that hinder spending time at the Loft, e.g. lack of access and busy schedules. Felt that the teams should spend more time at the Loft, which would make communication and working together easier, and increase the feeling of togetherness. In the spring term the faculty was not often present at the Loft, which caused challenges in communication and increased the barrier between the PIP staff and the students.	Events such as Christmas celebration, PD6 workshop, and PIP breakfast are valuable. In these events students get to know new people, and talk about their projects. These events increase team cohesion not only inside one team but also between the teams. However, it is important to have a balance between the informal events, and time designated to the project work. Lack of events was visible in the spring term and caused challenges in the interaction between the students and the faculty. Students wished for more involvement from the faculty and responsibility in organizing the supportive activities.	Knowing the the people around you makes it easier to work together, and familiarity feeds positively to the informal atmosphere. Students appreciated that having fun and being informal was allowed, and afforded in the Loft. The new ways of working, rules that guide behavior, and the new mentality was thought to be inspiring and motivating.
FACULTY	Being present at the Loft is mentioned to e.g. support communication, but there are barriers for being at the Loft, such as lack of time, or not having necessary resources available. Found that being present decreases the barrier between the students and the staff, and makes sharing information effortless.	Events are a good place for people to get together, and share valuable knowledge. E.g. through these events students were discussing also across the teams more than previously. Events give an opportunity to show externals the results that the students have done. Informal events and gatherings were found to decrease the barrier for communication, since people are in the same space, and get to know each other. In contrast to the students' perspective, the faculty felt that the students should take responsibility in organizing weekly or monthly informal events for the PIP community.	Faculty described the spirit and mentality of the Loft and emphasized the feeling of comfort, which enables open communication and trust. Visual cues, symbols and rules, help to act differently compared to the traditional ways of working, even though the faculty mentions how they are out-of-place and not used to this kind of creative working.

Table 3: Summary of the topics coming up in the interviews

6. KEY FINDINGS AND DISCUSSION

6. KEY FINDINGS AND DISCUSSION

In this chapter I will sum up the main findings and perspectives of this study. To remind, the research questions of this study are:

RQ1: How was the new physical, social, and mental learning environment supporting experiential learning set up and developed for the PIP course?

RQ2: What kind of new ways of working did the physical space afford and bring with it?

To answer these questions the thesis depicts the journey how this learning environment was developed with bringing in new furniture and harnessing the old furniture to new usage, involving the users to the development process, agreeing on common rules and practicalities, bringing life inside with events and gatherings, and setting an example how to utilize the new space while also supporting the local stakeholders to take ownership of the space. This new environment gave new opportunities for the students and faculty to interact and decrease the barriers for communicating, to utilize the space both for working and informal gatherings, and increased the feeling of team cohesion and togetherness. The main goal of experiential learning is to focus on how we are learning, instead on what we are learning – and the new learning environment totally changed the way students are learning in PIP.

The results are presented through three different lenses: the physical, social, and mental space. Both the observations of the action researcher and the stories in the interviews discuss all these topics: how the physical space affords different activities and as an attractive and comfortable environment is a reason to spend time in the space, how physical proximity is necessary for lowering the barriers for communication, how informal gatherings increase the feeling of togetherness as the people get to know each other, and how explicit rules can give the confidence to act differently and form new ways of working.

Based on the experiences of the action researcher, data analysis, and existing research, I have summarized the key aspects of this study that should be acknowledged and taken into account when designing new environments for experiential learning.

6.1 NOT A TRADITIONAL LECTURE ROOM

Design Loft is a flexible, inviting and comfortable place, where people want to spend time

The most important thing in the physical space of the Design Loft was that the students and staff felt that the space is comfortable, and that it enabled both working, but also having fun. These quotes from the students and faculty depict how the Design Loft was a different kind of learning environment, where you want to spend time, and where you want to come (emphasize added):

“...typically you go to the university, you work there and then you go home as soon as possible. But if you come here (the Design Loft) you are working and having a beer and that’s another type of working.” (S4)

*“...I like to be here and just by working, not only on the project but you can **work for your studies.**” (S1)*

According to the literature, flexibility is the key factor when designing spaces for creative work and experiential learning, since flexible spaces can be arranged according to the function and task at hand. In addition, flexible spaces allow different activities to take place in the same physical setting, which increases the usage-rate. In the Design Loft, the students reported how they were able to arrange team meetings, prototyping sessions, and informal and fun gatherings. The fact that they were able to combine work and fun in the same place gave them reasons to come to the Loft and increased the motivation to spend time there. In addition, the space was not just used for the PIP project, but some students came to the Loft to work also on their other school tasks and projects. As a result, as the students were physically present and available for unplanned encounters and conversations, just by being at the Loft.

All in all, the Design Loft was a nonterritorial space (Backhouse & Drew, 1992), which means that no one had their dedicated personal area and the fairly small office was able to accommodate several different activities. The common room Nest had two magnets; the coffee machine and the printer. Both of them give a reason for many people to come to a certain space, and hence which are triggers for interaction and encounters with other people.

Modified from the idea of Becker & Steele (1994, p. 117) of different zones in a nonterritorial space, the Loft can be divided into the following zones:

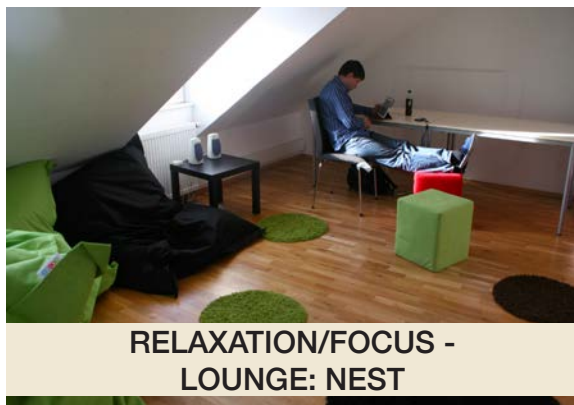


Figure 21: The different zones of the nonterritorial learning space

However, it was mentioned how the Design Loft is not used to its full potential and that students do not use the space as much as they could. They think that the space is great, and support their working, but they do not think as it their home base, where they would spend a lot of time. Especially as other people were perceived as one of the reasons to come to the Loft, and when seeing other people it caused a positive and warm feeling, it is important to encourage the students and faculty to be physically present at the Loft and spend time there.

The concrete reasons for not utilizing the full potential of the Loft, might be the challenge in the access (not every student has a key), the lack of time to be invested to the PIP project, the physical location of the Loft (might be far from other university buildings), or simply the fact that during the first months of the development the students had not been used to the space and did not even spontaneously remember it as one of the options where to study and spend time.

The concept of Design Loft was something new in TU Graz, and hence the students were not used to having an own space. When developing new untraditional working environments spaces, it is important to make sure that the users of the space have access whenever they need to. In addition, it is important to encourage the people to use the space by setting an example, and communicate the possibilities how to use the space. Hence, in PIP the role of the project managers in each team was vital in introducing the Loft to their teams, and making it a part of the team's routines by spending time there.

6.2 SOCIAL SPACE AFFORDS INTERACTION

Physical proximity increases communication and gatherings increase the feeling of togetherness

Central in experiential learning is that learning happens in interaction with other people. Instead on focusing on the theoretical facts, it is more important to pay attention to the ways people learn, and where the learning takes place. Hence, spaces which open opportunities for interaction and getting together should be developed to support this conversational nature of learning. Design Loft is a place which provides a neutral environment for the people to meet and organize events such as the breakfast or the Christmas celebration. As Kolb and Kolb (2005) define, spaces for conversational learning are vital to support experiential learning, since the traditional classrooms do not support interaction and knowledge sharing in the best way. Actually, usually learning happens outside of the classrooms, when people get together in cafeterias and apply their knowledge with each other. In this case the Design Loft was able to provide this environment for conversations and interactions with its physical layout, its affordances, and atmosphere.

As mentioned in the following quote, the people came to Design Loft to spend time. As it was possible to get a cup of coffee, to sit on the Fatboys, and move around in the space, people were coming usually early to a lecture or a meeting, and did not leave straight after the official part, which created opportunities for interaction, and thus triggered genuine conversations. This is valuable, since usually the best ideas do not come when you are in a meeting, they come up in unexpected situations while chatting with other people. It might be, that without the possibility to interact in the Loft, many of these people (e.g. students and faculty, or students with the guest lecturers) would have never interacted with each other.

*“...it was especially before and after the event that these people were standing around, having some coffee, **having maybe some cookies, and in lecture classroom it’s coming in, sitting down, lecture, going home.** And here they were talking before, and in the break and afterwards.” (F1)*

The fact that people were physically present at the Loft was seen as a signal for availability, and every time when the staff members or the action researcher was at the Design Loft, the students approached them and had several questions. However, when the staff members were not present in the Loft, the students felt that they did not get enough information on the course practicalities, since calling them or going to the institute to their offices made the communication more difficult. The faculty also noticed how there were barriers for communication when they were not present at the Loft. They also mentioned how they remembered to share important things when they saw the students, which they have otherwise forgot to communicate. Hence, being present is powerful to decrease barriers for communication, and valuable since more information is shared as people see each other face-to-face.

This kind of more equal teacher-student relationship and student centeredness is integrated to the concept of experiential learning, as the teachers are participating the learning process by coaching the students. It is important to create such an environment where teachers, students and other experts in the field work closely with each other and a culture of openness, trust and sharing can be established (Vaughan, 1991). The barriers for communication and physical distance between the faculty and the students are challenges to foster this relationship in PIP. Both the faculty and the students explicitly mentioned in the interviews how the Design Loft ‘is a place for the students’, and thus, the faculty did not spend much time there. In addition, the faculty was not rewarded for spending time at the Loft and they were not able to invest a lot of time in PIP. An important topic for the future would be to think how the Design Loft could support faculty’s working better, and how they could be supported and encouraged to spend time in the Loft in order to bring them closer to the students, and decrease the distance.

The value of getting together and communicating is not only in being informed and getting new knowledge, but it also increases the feeling of togetherness, and team cohesion. Both the students and the faculty felt that it is much easier to talk to the people who you have met, and who you know. Also, the students said how it is more comfortable to work together at the Design Loft, when you do not only know your own team members, but also have the possibility to get to know the other students. Aforementioned events are a great tool for creating a hospitable space for learning (Kolb & Kolb, 2005), and supporting this community feeling, since it has been researched how food and drinks bring people together, and opportunities for informal gatherings should be enabled (Becker & Steele, 1994; Laakso & Clavert, 2014).

“...you just come here (Design Loft) and have a coffee with someone, it would be great for me if you come here and meet someone and talk to them, ‘Ok, I’ll now do my work a bit and then you talk again’.” (S1)

However, these events need to be initiated and organized by someone, and the community needs an actor, who is the driving force to bring people together. The action researcher had a big role in bringing people together, and as the role was not explicitly passed on to anyone, it was very unclear who should have the main responsibility for coordinating such informal activities, which are not directly related to the PIP projects. The students felt that the faculty should take the responsibility since they were busy with their projects, and the faculty felt that the students, who are the main users of the Design Loft, should initiate the events. All in all, the role of a coordinator who is responsible for practicalities, communication, and such informal gatherings, should be explicitly defined. The students should be integrated all activities, but the faculty should have the overall organization and responsibility in order to maintain continuity and have the opportunity to develop those practices coherently.

The PIP students only contacted the staff members if they had a specific question in mind, but they did not ask for help with things that seemed unimportant or not that urgent. However, we do not always know when we need help or are able to ask the right questions. Having a person observing the progress and helping when she sees that there is a need to contribute could have supported the students' work tremendously. Just think about it, at a workplace you bounce off your ideas with your colleagues and ask their opinions. You might get valuable insight and advice from someone you did not expect, or did not ask directly for advice. Hence, physical proximity is powerful: being physically present reduces the barriers for communication, boosts interaction, and brings up topics that would otherwise not be brought up.

6.3 RULES SET THE MINDSET OF THE SPACE

Explicit rules can help to create a safe environment to feel, act, and behave differently

We are very good at reading spaces, what do they afford and what they do not afford, what is allowed and what is not allowed. Hence, usually we understand the norms and rules of the space without explicit signs or instructions. For example, we know that you should not jump around and talk to others during a lecture, or you should not speak loudly in a library. These are the rules and affordances that among others Cresswell (2004), Fayard & Weeks (2007), and Gibson (1986) talk about. The Aalto Design Factory research team also found out in their study about the ADF community, that the physical space, when being flexible, unpolished and full of action, communicates the ways of working, such as “freedom to take action and act outside of the norm” (Björklund, Clavert, Kirjavainen, Laakso, & Luukkonen, 2011, p. 85).

Design Loft was a new space, where the students or staff had not worked before and therefore had no pre-learned ways of working integrated in their behavior. This provided a wonderful opportunity to introduce new practices and rules to the Loft, which would increase interaction, bring people closer together, i.e. lower the hierarchy between students and faculty, and support the students work with fun and inspiring environment.

The ways of working and atmosphere introduced to the Loft were based on certain ideas – mostly arising from the ADF norms and culture (see chapter 6.4). For example, the Loft was a working space for the students, where the idea was that they could both work and have fun, and have all the freedom to work whenever is most suitable for them. Thus, the Loft was a working 24/7 working space. However, the reality did not fully meet the idea due to the challenges in providing access to the Loft for all of the students.

“Yeah, this 24 hours open is a little bit... not really 24 hours.” (S4)

The fact that not all the ideas fully functioned in the Loft was not however a failure. For example, this rule of 24/7 access in the space was important as an idea, as an example how the space can be used. This applies to many other rules and norms in the space, such as talking to strangers, talking only English, hugging at the Hugging Point, or the possibility to have beer after a team meeting. Even though these things did not come to reality on a daily basis, they were important building blocks of the Design Loft mindset. Without these rules and ideas how to use and be in the space - or as Strassoldo (1993) would define, live in the space - the students of the faculty might not have even thought that the space could be used by night, or that you could hug someone when standing on a purple sticker. The point of these explicit rules is not that they are slavishly followed, but instead that they set the tone of the space, the spirit, and the atmosphere. They communicate what could be possible, and give a license to act differently, e.g. to wear pink slippers in an official meeting with the company representative with a black suit. Many of these ideas and rules might have still been a ‘work in progress’ in the Design Loft, but they were present, and gave the direction where to head in the future.

The space development workshop organized together with the students played a big role in showing what could be done with the space, and giving confidence for the students to take ownership and live in the space. As Bickford (2002) mentioned, users are too seldom integrated to such design processes, even though they are the experts and main users of the space. The action researcher had a big role in setting an example and setting the mentality of the space, being kind of the mental role model of the space:

“...you predefined for us the preconditions [...] Like the mentality of the whole place” (S2)

You can buy new furniture, you can force people to join events, but you cannot artificially create the mentality of a space. When introducing these new ways of working, it was beneficial that the action researcher was able to bring her experience from outside and also act like an outsider, not knowing all the norms and rules, thus was able to be out-of-place and behave out of the norm (Cresswell, 2004; Reay et al., 2006).

However, these ideas are not practiced even on an incremental level if the atmosphere and the culture of the space do not afford such different kind of behavior. Hence, it is important to create both a physical environment that affords this new behavior, and a mental space where

it is socially acceptable to act differently. The Design Loft grew to be a place where people are allowed to be and feel, act differently, and have fun. Places where the users have a feeling of belonging and respect, and where it is allowed to safely feel, think, and have emotions, are encouraging and motivating learning (Kolb & Kolb, 2005).

6.4 ADF CULTURE TRANSLATED TO THE DESIGN LOFT

“...if we needed help or anything you always were there and I think it is also that you were from Finland, from Design Factory that’s also a really positive aspect that you know how it’s going on there and how it should be going.” (S3)

Earlier, in chapter three (research setting) I presented the Design Factory culture, explained by Oinonen (2012). Since the development of the Design Loft was largely based on the norms and values that stem from ADF, in the table 4 I have reflected the development process in Graz to with the ADF norms. This shows, how with incremental changes in the physical environment, with the power of example, and even with a little time, new practices and ways of working can be translated from one place into another, new environment. In addition, I have summarized the challenges related to realizing each of these values to full extent, which could be the focus of future development of the PIP course and the Design Loft in TU Graz.

As Oinonen (2012) describes, the norms are translated and depicted through space. Physical, social, and mental spaces carry the ways of working and practices within. I have highlighted the connection between the norms of ADF and how they have realized in the Design Loft.

NORMS AT ADF	TRANSLATED TO THE DESIGN LOFT	CHALLENGES
Trust, responsibility, freedom, low hierarchy, openness, accepting incompleteness, positive attitude	Students have the freedom to use the space, everyone is using a shared language (English), teams share the responsibility for taking care of the Loft (PIP weeks), the students take time for teambuilding and spending time together, which increases togetherness and influences to the overall atmosphere in the Loft.	The staff members felt that they are distant from the students, but they did not spend time at the Loft to decrease that distance and barrier for communication. In addition, the students had to be dealing with several regulations and instructions, thus bureaucracy was impossible to avoid.
Leaving comfort zones, curiosity, inspiration	The different ways of working and rules in the Loft give a safe environment for many to leave their comfort zones and act (with permission) against the prevailing norms. The fun and energetic feeling was visible in the Design Loft.	The challenge in the future is to maintain the open and supportive mindset, which encourages students and faculty to carry on with the development and maintain the fun and informal mindset of the Loft.
Access, open innovation, creating interactions, working together, interdisciplinary, information sharing, proactivity, co-creation	The students feel that they can use the Loft for working and getting together with their team. The Loft was described as an comfortable and open place, where you want to spend time. Community events such as the breakfast and the Christmas celebration are great opportunities for sharing information and getting to know new people.	The access to the Loft was limited to the students. This might be the reason why the Loft was mostly used for working on the project on agreed times, and there were not that many students using the Loft outside of team meetings, events, or lectures. The students were pleased with the events outside of the project, but wanted the faculty to take more ownership in organizing and coordinating them.
Failing, fun, experimentation	The Loft affords the students to combine work and fun. When working on their projects, the students often got enthusiastic and had some fun while creating new ideas. The mindset is open for experimentations. The Loft is a free and safe playground to test ideas and have fun with the team. There was always coffee available, and beer in the fridge, which allowed the students to sit down and chat together after a meeting or a lecture.	The Design Loft did not have the best possible equipment for prototyping in the fall 2013. There was not enough simple materials and tools available for quick and dirty prototyping, since it was not clear who is responsible of taking care of the supply, and if there is resources for that.

Table 4: ADF organizational culture (Oinonen, 2012, modified) visible in Design Loft

6.5 TAKEAWAYS OF THIS STUDY

This study presents the field of experiential learning, discusses how physical spaces have the power to support new practices and ways of working, and how not only creative and successful companies, but also universities and schools need to give more focus on the spaces and environment where learning takes place. Nontraditional classrooms for experiential learning are flexible, support different kinds of working, and bring teachers and students in a more equal and dynamic discussion with each other. Physical and mental features in spaces can either foster and support interaction to happen, or they can hinder communication between the users of the space. Important is to develop such places where spontaneous and accidental encounters can take place, and appreciate the value of these encounters.

To summarize, the key takeaways of this study are

- When developing a nontraditional learning space, give people reasons to come to the space, whether it is the comfort of the space, flexibility of the spatial design, other people, events and gatherings, or resources available. Most importantly, people need to be able to access the space in order to start using it.
- Physical proximity is power. Having people present and discussing face-to-face makes communication effortless and decreases distances between different stakeholders, e.g. students and the faculty.
- Design a physical and mental space that affords and enables interaction to take place by e.g. having a big enough space to host events, and having a kitchen which allows you to cook.
- People have the opportunity to get to know each other in informal events in a relaxed environment. This feeds positively into interaction and community feeling, since it is easier to communicate and work with the people you know.
- Rules can be used to encourage new ways of working. Explicit rules give people a permission to act differently, i.e. according to the nontraditional rules, and they also set the mindset of the space. However, it is not easy to make new practices stick. Thus, it is important to have a people who set the example, pass on the mindset, and have courage to act differently.

At its best, a good learning space encourages and affords everyone to share thoughts, visualize their ideas, communicate, feel and think. It is flexible, dynamic, and enables experimenting. In addition, an attractive, good-looking, physical space alone can create positive buzz and interest, and be a tangible showcase to justify the new activities. However, space is nothing without the people. As also showed in this study, spaces for experiential learning need someone who shows example with the rules, and ways of working, and encourages the users of the space to take ownership of their space. In the end, it is not the colorful furniture that makes the difference; it is the people, i.e. the community, and the attitudes and behaviors that are adopted in the space. Hence, the interviews and observations show, how there was a strong need for a project coordinator for PIP, who is not tied to the traditional university administration, and is setting an example of the mindset and tone of the space. As an extra finding, I will talk about this role in the next chapter: Beyond the space, reflecting on the role of the action researcher.

**7. BEYOND THE SPACE -
REFLECTING THE ACTION
RESEARCHER'S ROLE**

7. BEYOND THE SPACE - REFLECTING THE ACTION RESEARCHER'S ROLE

Even though the focus of this thesis was the space an environment for experiential learning, the action researcher's role, and role of a project coordinator for PIP, came up in the interviews so many times that it cannot be ignored. Two main perspectives of this chapter are: to have a person who has the ability and motivation to dedicate time for coordinating an experiential course such as PIP, and another focus is on the development and change process – whether new development is easier facilitated from within the organization by an embedded actor, or from outside, by an external facilitator.

The table 5 summarizes the comments related to the action researcher's role and to the change process, which came up in the interviews. These three topics will be discussed more thoroughly in this chapter, and supported with literature about supporting innovation processes, and making change in an organization as an integrated or an external actor.

	Project coordinator facilitating the PIP process	Being a change agent – to be embedded or not to be?	Continuity and transferring ideas
STUDENTS	Students feel that there should be someone taking care of the Design Loft, initiating and organizing events, being present at the Loft and helping when necessary, bringing people together, and the main contact person between the students and the institute. The students were frustrated of the mixed and unclear communication from the faculty e.g. about the schedules, and practicalities. A coordinator could be closer to the students and not as distant as the traditional faculty.	External person, someone who is not coming from the institute, with a different approach, and experience can bring new ideas and perspective to PIP. Students feel they can talk more openly to a person not involved in the grading process - they were not comfortable talking about failures and challenges to the faculty.	The students did not talk about the challenge to keep developing the practices and practicalities in PIP, which is not surprising, since the students are involved in the course only for one academic year.
FACULTY	The action researcher's was clearly an extra resource for the PIP course, a person setting an example and motivating the people towards the new practices, a contact person between the institute and the students, a person organizing events and having the focus on PIP, and an outsider in the sense that the students are able to talk more openly to the person who is not involved in grading. The faculty commented how this kind of person would be valuable and that it would be beneficial for the future to keep having a role like this.	External person is someone who brings new insight, energy, and expertise to the receiving end. Interaction with the external person is more respectful compared to the people inside the organization, and the same rules and expectations do not apply; an external can do things differently and act out-of-place, since she is not integrated to the prevailing norms and rules. In addition, an external is not tied to the daily administration and bureaucracy of the university, which gives her more freedom to fully concentrate on PIP.	Challenge to maintain similar practices after the intensive development period in the fall. Taking over new practices and activities is difficult, even after seeing an example, since everything is new and the approach is different. One of the interviewees wondered if the physical space will convey the spirit and ways of working to the students in the future, or should the spirit be triggered somehow.

Table 5: Summary of the interview topics related to the action researcher's role

7.1 PROJECT COORDINATOR FACILITATING PIP

It clearly came up in the interviews that the students were hoping for more coordination in the whole project: a communications person between the students and the institute, someone who is informing about events and deadlines, a person who would be the contact person in the course practicalities and taking care of the Design Loft, and someone, not involved in the grading process, who would support the students, and be close to them.

From the faculty's perspective a person dedicating time only for PIP is a necessary extra resource, who can initiate new ideas, be the contact person between the students and the institute, and who is not tied to the daily administrative challenges at the institute and thus can be closer to the students. These definitions were brought up when talking about the action researcher's role during the development period in Graz. More generally, courses of experiential learning differ from traditional lectures, and the teachers are coaches and facilitators of the process, who are not just involved and interacting with the students during a lecture, but actually involved in the whole process in order to be available for the students when needed.

In the case of PIP course in Graz, Hauschildt's (2003) model of roles that are necessary for carrying out successful innovations can be well applied. He defines how innovations need a promotor by expertise (or a technology promotor), a power promotor and a process promotor (see figure 21) (Hauschildt, 2003). The power promotor is someone who can give resources and mandate from above, the technology promotor shares his or her specialist knowledge and expertise to the process, and the process promotor is someone who brings people together and combines the different interests towards the mutual goal (Hauschildt, 2003). In the beginning of the PIP process, the roles of a process promotor and a technology promotor were combined in one person, and the power promotor was one professor at TU Graz (Fallast, 2007).

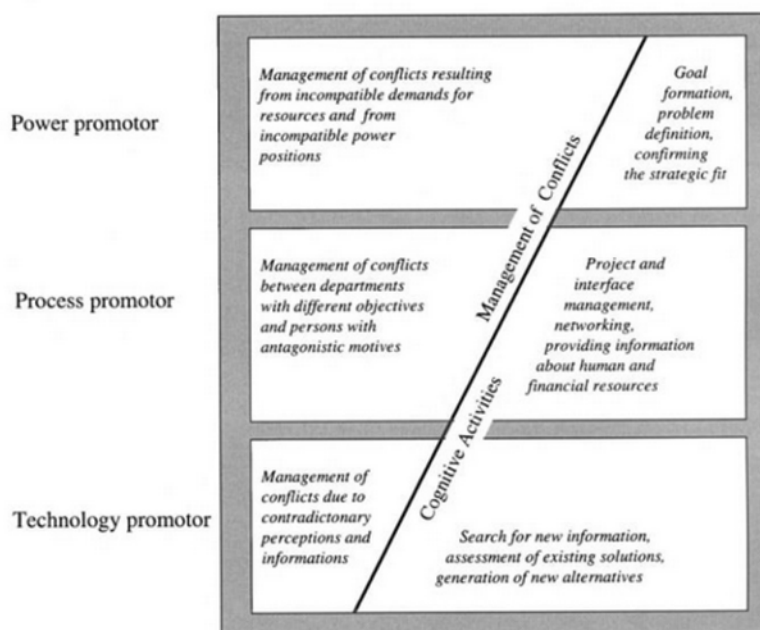


Figure 22: Roles needed in successful innovations processes (Hauschildt, 2003, p. 808)

To this day, there has not been a separate process promotor in PIP even though there is annually more faculty involved in PIP. Doctoral students of the institute are usually taking the roles of project management and supervision in PIP, and the professor acts as the power promotor. Hence, the PIP faculty is involved in several other projects in addition to PIP. The role of the action researcher soon became someone, who shared the workload from the project manager, and took the role of a process promotor: helping the students in their everyday issues and being a communications person between the faculty and the students. Needless to say, in order to succeed, the close co-operation between the promotors is important, and here the process promotor can play a big role (Hauschildt, 2003).

In the case of PIP, the process promotor was seen to have several roles in looking after the physical space, coordinating activities, taking care of the practicalities and the atmosphere of the course, and being a communicator between the students and the staff:

“That person will take a load of the teams, so that the teams have this connection to each other this person is kind of in charge to keep the connection within the teams. It’s hard I guess and but if you have a person who will tell like ‘ask this team, they were talking about that’ then they will, this person will bring the persons together. [...] It takes someone to take care of the whole project.” (S1)

“...you were the person who tried to make the whole project more than the work. So that you organized the breakfast and the Christmas party and also the development workshop for the office. [...] it was also very fine when you came to the Loft and you were here and you had someone to talk with, it was, you made it more angenehm (comfortable) [...] It was anything that through these events you brought people together, that you brought them together to talk with each other.” (S3)

As Hauschildt (2003) defines, process promotor is someone who brings people together and shares information on available resources, both human and tangible. The PIP staff felt, that the students discussed easier about their challenges and failures in the project with the action researcher, i.e. the project coordinator, who was often available at the Design Loft and not involved in the grading, and had no other responsibilities than the PIP course, hence was able to invest time. A professional relationship was found to be a barrier for the communication.

“Everybody was talking to you easily and told you their problems and was really happy being with you and the students with me were always [...] it’s a professional relationship so ‘take care what you are talking about, they are responsible for the company and we talk with them about the company stuff and important stuff but not really about problems because they thought that if they talk about their team members that they are not working very well anymore – then they blame the others so they didn’t want to do it.’ Because I would give them a bad grade or I would kick them out of the project or whatever.” (F1)

“...I mean with the special person for the PIP, it’s not a traditional university staff. You have different responsibilities as traditional staff of university assistant. So the number says 40% research, 40% courses, and 20% administration. And the main target of the university assistant is the PhD. A day has 24 hours...” (F3)

Also the students felt that it was easier to talk to someone who was not that integrated to the institute, was more available at the Loft, and spent more time with the students:

“...you are an outsider and that’s different. Because maybe students think that the guys from the institute rate you or give the grades afterwards and it’s not that friendship communication [...] you can’t talk that open for example. You don’t say that ‘no, we don’t have a plan’.” (S4)

This experience, having a project coordinator for PIP who could dedicate more time on the practicalities and spend time at the Design Loft, in proximity of the students, was a big help for the institute and it showed the value of the role also for the future:

“...the traditional staff never had the main focus on PIP. PIP is one of the projects of the traditional PIP staff and it was a big difference seeing you with the focus on the PIP. And I think that would be opinion for the future also, for the PIP to have one person with one project and that project is Product Innovation Project.” (F3)

Role of a motivated project coordinator

I noticed how the students and the staff members give me different informal roles. At times the staff asked me for help and instructions, which put me to the shoes of an expert in the field, sometimes the students treated me like their peers, at the Christmas celebration I got a card from the students saying ‘we will miss our Finnish mommy’, and at times I was like one of the staff members at the institute, a colleague for the PIP staff. (From the field notes)

It seemed like it was important to have a person to whom assign these different roles. Someone, who does not have a tight official role at the university, and thus can be a general handyman, connector, and a messenger, and adopt various roles inside the organization.

“...you had different roles. One of them was helping us as supervisor team [...] helped us to organize and to have the regular supervisor meetings and how to deal with different problems [...] you were developing PIP so means Design Loft, organizational things [...] the events you organized [...] you were also a kind of family member for the teams, and you were little like between the teams and us.” (F1)

Most importantly, the action researcher was able to share information between the different

stakeholders. The students felt, that they got mixed information from the different faculty members, and that the information e.g. about deadlines and events was delivered too late:

“You just organized things or said that ‘we make this and this’ and it was good communications, everybody knows what’s going on [...] this was totally gone when you were gone. Because there was no communication [...] They (referring to the faculty) want us to plan but it doesn’t look like they plan that much ahead. [...] there would be one guy from the institute who communicates more often with us.” (S4)

One of the roles was also to take care of the Design Loft and be in charge of coordinating the common events. As mentioned before, the students perceived these events outside their projects very valuable, and they would be willing to help and participate, but thought that it is the faculty’s role to coordinate these events.

“After (the fall term) no one took care of the whole facilities. [...] organizing this breakfast and just do it [...] someone has to take care of it [...] the teams are focused on their work so it’s someone out of those teams who says that ok let’s do this [...] like I know that in the beginning everyone agreed to a Christmas party but it still takes someone to organize it.” (S1)

“...from the institute side, there wasn’t so many events like when you were still here. So there wasn’t a breakfast. I know that you also said that we can try to arrange it but anyway it’s still a little bit different because everybody has to study and we have to work for the project and it also would have been nice if there would have been more help or something, participation from the institute.” (S3)

On the contrary, the staff members thought that the action researcher was a valuable extra resource to among others organize these events, but that in the future the students should take the responsibility:

“...it was a big problem because the staff from our side was not ready to organize the whole events and then they you (referring to the students) said, ‘ok then organize it’, we will be there but we have no time, we have to prototype and we have to work on our project, that’s our focus at the moment.” (F3)

Clearly, neither the staff nor the students saw the events, bringing people together, building the community, and taking care of the Design Loft as their task and priority. For the future, it might be necessary to have a project coordinator who takes over these tasks, or that these tasks are explicitly shared among the PIP faculty. The students should be always integrated to the process and e.g. asked to help with organizing the events, but the overall picture and coordination comes from the faculty, who can then also pass on these practices to the new students.

After the action researcher left, the faculty felt that they lost the connection to the students, perhaps due to the lack of events where they could have met them in informal atmosphere. The staff did not spend that much time at the Design Loft, where the action researcher was able to observe what the students are doing, help them, and answer their questions, and again bring these questions and concerns up in the PIP staff meetings.

“I got the feeling that I have try to get strong connection to my teams again, because the events I saw the teams all the time and then there were less events in the beginning (in the spring term) so I didn’t see them. So I had to do the first step towards my teams that I knew what they are doing. And then I also felt that they don’t tell me all the problems [...] If you were talking with me, it was for me also then easy to talk with the teams and in the comfortable environment but now they have to talk to me again and there is again the professional relationship.” (F1)

7.2 BEING A CHANGE AGENT – TO BE EMBEDDED OR NOT TO BE?

“Building trust with people is critical. You have to build trust and be there and sometimes you have to be there more than what you normally would be there just to be able to build that, you know, that you are there as a resource, that they can trust that you’re going to get things done.” (Reay et al., 2006, p. 989)

In addition to bringing up the importance of a project coordinator, the interviewees mentioned also how it was valuable that the action researcher was an external facilitator, someone who came from another organization to TU Graz. Typical for action researcher, I was working closely with the stakeholders in Graz, and managed also to form personal relationships. This increased the level trust, but it was still clear that I was an external and not familiar with all the politics, ways of working, networks, and such in TU Graz. As Reay and her colleagues (2006) would define it; I was not embedded to the organization. The concept of embeddedness has been used to explain the role of human agency in change processes, and when explaining the start of a change process in institutions (Reay et al., 2006). Embeddedness means “the extent to which people have links to other people or activities” (Lee et al., 2004, p. 712), and it defines “on weather or not and to what extent, actors are embedded in their contexts” (Reay et al., 2006, p. 977).

The project in Graz was not about culture change or organizational development; it was about incremental changes in the learning environment and ways of working. However, as seen in the previous comments and analysis, these ways of working seemed to influence also the bigger picture – the way people felt and behaved at the Loft, and how the faculty saw the future development of the course.

Change in practices through incremental actions

Reay et al. (2006) describe how individual actors are powerful in changing the current and already established ways of working. They found that these actors “legitimize new practices by accomplishing three interdependent, recursive, situated microprocesses”, and that these ‘microprocesses’ are accomplished through a set of small wins, which confirm the right direction and give the actors confidence to continue with the change efforts (Reay et al., 2006, p. 977). Hence, the concept of small wins hints that it is good to make the change progress explicit, since it gives the actors feedback of the process. In this case as the action researcher I also tried to communicate about the new ideas and ways of working, make them explicit with visual guidelines and symbols, and emphasize even the small things that were changed.

“... there was so much stuff that if we would say that [...] ‘c’mon, what should we do with that’, for example the rolls on the tables [...] the small things that, and I think this really makes the change in the whole stuff. Because the small things you usually don’t see and the big ones of course everyone sees that but... it doesn’t have to be with the Loft stuff but if you bring an ideas how to go on or how to do the organizational stuff, this was also something that they (referring to the faculty) really welcome from your side.” (F2)

As Seo and Creed (2002) found out, change agents do not come up with totally different ways of working or actions, since they would be too far from the existing habits and be unfamiliar to the other participants. Instead, they change things by concentrating to the actions and frames on the borders – something that is different enough to be considered a new way of working and on the other hand familiar enough, so that it can be understood and adopted by other participants (Seo & Creed, 2002).

Change is a lot about individuals and their actions, they are the ones who can change the established ways of working (Reay et al., 2006). This development of the learning environment in Graz was also a change process, however incremental, but it still needed an agent, who started to initiate new practices. In this case, both the students and the staff were involved in the change process, and the action researcher was an actor to initiate change, with high agency.

Introducing new ways of working, from within or from outside?

“I know we only can change the culture by combining somebody new from outside with the talents we have inside and this new organization changes a little bit the culture.” (F5)

Every change needs an initiator and a primus motor. Surely organization’s ways of working do not change if just one person changes his or her routines, but just as the theories of embeddedness and agency (Reay et al., 2006) depict, a person coming from outside and not being integrated to the routines and knowing the norms, has an opportunity to introduce new ways

of working. However, being embedded is not only a constraint. Reay and her colleagues (2006) noticed how actor embeddedness worked favorably when bringing in a new role to an existing organization. The actors who were embedded were able to evaluate the success of specific strategies in advantage and choose certain times and places to act in order to change institutional practices (Reay et al, 2006).

I noticed the same in Graz. As an external visiting facilitator, I was able to act differently since I not embedded to the system and environment, and did not know all the implicit norms and rules in the same way as the rest of the faculty (Reay et al., 2006). In addition, the organization does not place same expectations for the external, than to their embedded faculty. The external person can also be a challenger and has opportunities to open up new tracks for towards the desired change (Hensmans, 2003). The faculty reflected how the co-operation with an external person is more respectful, and you listen to his or her experience more openly, compared to working with someone who is embedded in the organization.

“...at the beginning there is a little, let’s say distance, more respect I think, I think in your case it was a special situation because some of staff and some of the students already know you and you were already here in Graz [...] I think the respect regarding this topic was really high.” (F3)

The faculty was willing to collaborate and experiment with the new approaches introduced by the action researcher, since the different experience is seen as a strength:

“...it’s not that easy just to copy Design Factory [...] you have more experience, you really know how Design Factory is working so you were, for you it was easier to do some initiatives here. For us it was more difficult. And the developing steps, if we would have done it, it would be kind of developing, but just really incremental steps. And you were coming with all your experience and there was a really big step.” (F1)

Both the students and staff emphasize how an external person is not tied to the daily administration and bureaucracy of the university, which gives her more freedom, and the ability to concentrate fully on PIP. This has also been found in literature: actors with low level of embeddedness do not have the weight of the institutional environment on their shoulders, and they have a strong desire to initiate change (Reay et al., 2006). People who come from outside see perhaps more and are not so tied in the taken-for-granted routines but their hands are often tied. Hence, a person adapting this kind of a role does not necessarily have to be an external, if the responsibilities are explicitly agreed. After all, in PIP it all comes down to having a person, who has time, and is familiar with experiential learning, product development, and interdisciplinary industry projects in a university.

“Your role was to roll the ball, you bring everything to move. I think it’s very important to have someone like that [...] you are from the other side and you don’t have the feeling

that you have to fit in the whole structure and that's why I think it's kind of easier if you bring the ideas even though the others can have them too but I think this is really important especially in the beginning to understand that thing about PIP and stuff.”
(F2)

According to Reay et al. (2006), those actors who are less embedded are more likely initiate change since not all actors within an organization are equally embedded and they look at the existing ways of working from another viewpoint while bringing their own input to the mix. In addition, these actors “are not constrained by established practices, and when they enter a new setting they bring with them new ways of working that may catch on and spread” (Reay et al., 2006, p. 978-979).

However, it does not matter if the person with high agency is embedded or not, the most important thing is that the people driving change and new practices are engaged and committed. They are the ones who convey new meanings through their activities. In earlier studies embeddedness in a situation of change has been seen as a constraint (Reay et al., 2006). However, Reay et al. (2006) show how embeddedness is more of an advantage and strength – the more embedded actors, the insiders, know to whom to talk to, which topics to bring up, which tools to use, and when to approach these people. As Reay et al. (2006, p. 977) put it; actor embeddedness provided “basis for taking action – an opportunity for implementing desired change”.

Low embeddedness certainly had its downsides: you do not know all the people, are not familiar with the politics in the organization nor can you use your knowledge to sell your ideas in the right time and place to the right people. When you are embedded and integrated you are able to make deeper impact, long-lasting change and be integrated to the system. But, even though embedded actors are clearly powerful in initiating change, they have little desire to do it, since they are constrained by their institutional environment (Reay et al., 2006).

As a consequence, it seems like the most powerful combination is to have the both: embedded and not so embedded actors as change agents in the organization. This way the change agents could utilize the networks and have insight on the internal politics and ways of working, but also at the same time have the courage to bring in new practices. Hence, from my experience I could say that change is initiated most efficiently when the core agents are a team of the low embedded jesters and the highly embedded insiders.

7.3 CONTINUITY AND TRANSFERRING IDEAS

Finally, it is important to think how these new practices are further developed and taken forward. The PIP students are integrated to the projects only for one year, and within that year develop their own community, but the group of new students next year do not have a clue of the ways of working and practices e.g. in the Design Loft. In the best case, which has also been seen in PDP in Finland, some of the motivated students stay attached to the course and could

e.g. take on the role of a project assistant or coordinator. In these cases, this student is able to pass on his or her experiences to the new students. However, even if there would be students who are engaged in the course as facilitators and coaches a year after, the faculty has the role of coordinating the bigger picture, building continuity, and passing on the activities and the spirit of the course.

These roles are also clearly seen in the interviews. The students do not mention the challenge to pass on the culture or the practices of the course, which is not surprising, since they are usually engaged only for a year. Instead, the faculty brings up concerns how to maintain these similar practices, if the physical space alone is enough for transferring the culture, or who should be the one setting the example in the future.

“...will it be the same with the new teams next year immediately? So is it really the environment or this kind of, do we have to trigger it to support it, that this feeling of relaxing environment is coming again. Or is it just the place, so the place is important, or is it also a little bit what we are doing as supervisors in here. Because we are also acting differently I think.” (F1)

Surely the nontraditional physical space can afford new behavior and actions, but as mentioned before, the space is nothing without the people. After these interviews the situation is surely developing forward, since one of the students actually took on the role of a course assistant for the year 2014-2015, and if in a key role when passing on the experiences, spirit, and culture of the PIP course, and supporting the students as a coach and a peer student.

8. FINAL WORDS

8. FINAL WORDS

The aim of this study is to describe how the PIP course was supported with a development of a new learning environment. This thesis depicts how the new learning environment was set up, and what kind of new ways of working did the physical, social, and mental space afford and bring with it. Hopefully through these examples and experiences people looking to set up an experiential learning environment can get inspired and understand the different sides of the process.

As there is a growing need to educate graduates who master not only the theoretical knowledge on their field, but also the ways of working in real-life, the ideology of experiential learning has been adopted in several institutions in higher education around the globe. However, experiential learning requires a new approach to the teacher-student relationship, the way learning happens in interaction and through experiences, and where learning takes place. The new environments for learning challenge the concept of a traditional classroom, and enable learning and interacting totally in a new way.

When organizations want to change processes, develop new practices, or for example support knowledge sharing between different stakeholders, the physical space has not gotten enough attention, and usually it has actually been taken for granted. However, latest practical examples and research shows, how physical space can have a huge impact on the ways people work and interact, and how physical space can also implicitly communicate the affordances of the space in terms of social interaction, and even organizational culture. As mentioned, space is the identity, the backbone, of an organization.

Introducing new practices is not easy and it always requires an actor, a change agent, who is familiar with the situation, has the drive to involve others, and push the process forward. For me personally, this process was very challenging and at times also tiring, but it was the small wins and moments of success, that helped to carry on. The positive feedback from the students and the faculty, seeing how the previously empty and cold office space gets new colorful life inside, observing how people interact and behave, and seeing the smiles on people's faces, was the main fuel during the process. In the end, the biggest reward is to see and hear how the development has gotten forward in TU Graz, and how the space can support the work of the new enthusiastic group of students.

However, the three-month intensive development period was very short, and the biggest challenge was to pass on the knowledge, the experiences, and the ownership of the space. The students started to use the Design Loft, but there were different opinions on the overall respon-

sibility of maintaining the space, and the coordination of the activities in PIP. For similar cases in the future, where this kind of intervention is done with the help of an external facilitator, I suggest to make sure that the local organization understands the purpose for the development and the actions taken, and have the resources to carry on with the new ideas and practices. Even though the students are come first and are in a central role, the faculty and decision makers should by no means be ignored and forgotten, since they are the ones who carry on with the progress and ‘spread the virus’, i.e. the spirit, forward.

Even though the focus of this thesis was on the space, there are several other aspects related to projects like this, which could be researched. E.g. the influence of the cultural setting of the country and local organization, the input of different stakeholders and their interests, the participation of the industry partners, or the resources available. For example, it would have been interesting to research more how in the long run the students use the space, how the faculty could be more integrated to use the space, how the ownership of the space evolves, and how the practices are passed on. The biggest challenges in course organization were the general organization and communication between the students and the staff. The Design Loft has the potential to be the connector, the meeting point, and a place for low hierarchy and distance, but that would require the faculty to have more reasons to work and spend time at the Loft, be more present, and thus, embrace the more equal teacher-student relationship. The role of a process promotor, i.e. the project coordinator, discussed more in the chapter seven, could also have a great impact on the communications and teacher-student relationship on the course.

All in all, the Design Loft is now a physical manifestation of the experiential learning approach on the PIP course, and a visible and tangible result of the change process. Hopefully the Loft can maintain its jester role, and be a hub for different kind of behavior, for informal interaction and fun, a kind of a rebel or an embedded change agent within the quite formal university environment, driving towards better learning culture.

the 1990s, the number of people in the UK who are aged 65 and over has increased from 10.5 million to 13.5 million (19.5% of the population).

There is a growing awareness of the need to address the needs of older people, and the Government has set out a strategy for the 21st century in the White Paper on *Ageing Better: The Government's Strategy for Older People* (Department of Health, 1999). This strategy is based on the following principles:

- (i) older people should be able to live independently and actively in their own homes;
- (ii) older people should be able to live in their own communities;
- (iii) older people should be able to live in their own homes and communities for as long as possible.

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APPENDIX

APPENDIX I: INTERVIEW QUESTIONS AND TEMPLATE

Questions template for the semi-structured open interviews

Warmup

- Tell about your background
- Personal relationship to PIP (role to PIP)
- How would you describe PIP to someone who doesn't know anything about it?

Fall 2013

- Using the template, depict and draw your own feelings and experience about PIP between Oct 2013 and Jan 2014 / What happened in and around the PIP course in the Fall 2013?
- What kind of experience in general was last fall for you? How did it go?
- Could you name one (critical) incident/great happening from the course since its beginning in late October 2013?
- Were there some unexpected things (positive or negative) happening? New practices? New and unexpected learning outcomes, e.g. problem solving, communications, teamwork?
- If you would need to describe the feeling of PIP in the fall with one adjective, what would that be?

Design Loft

- How often do you visit the Design Loft?
- How would you describe Design Loft to someone who doesn't know anything about it?
- Can you tell one story / incident that you remember and which happened at / is related to the Loft?

Continuation, spring 2014

- What has happened in PIP after Christmas? – Recall your feelings and experiences
- If you would need to describe the feeling of PIP in the spring with one adjective, what would that be?

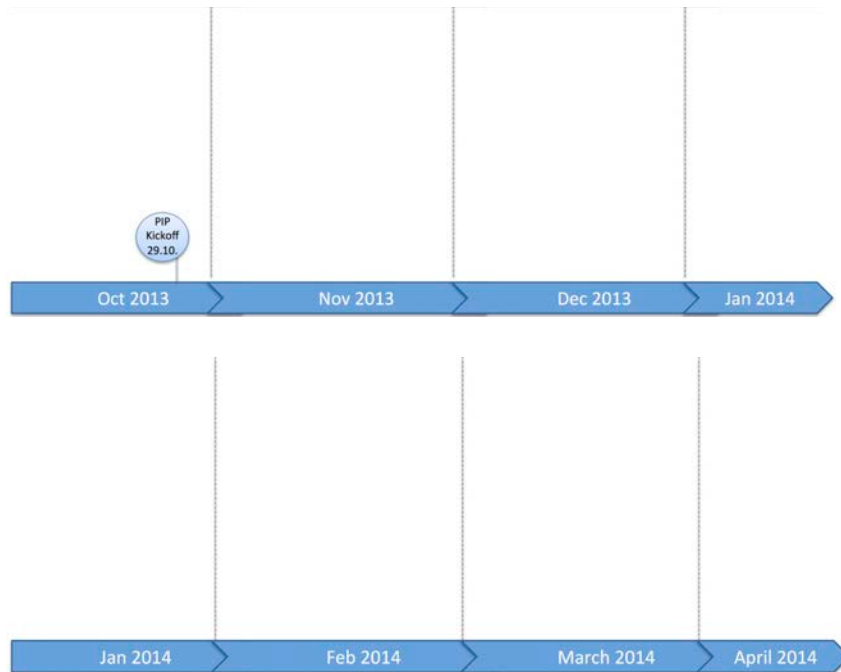
External facilitator, helper

- What was the role of the action researcher in your opinion?
- Does it make a difference that the action researcher came from outside?

Future

- How does this concept of PIP suit to the environment in TU Graz in your opinion?
- How would you envision the future for the PIP course?
- How would you develop the course?
- How would an ideal PIP look like?
- Anything else?

Timeline template to support the interviews



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APPENDIX III: SELECTED QUOTES FROM THE INTERVIEWS & KEYWORDS

Keywords

- A) Familiarity builds togetherness
- B) Hard to communicate when people are not present
- C) Value of informal events & gatherings
- D) Comfortable environment where you want to spend time
- E) Space affords relaxing, combining work and fun
- F) Flexibility in the space
- G) Space affords informal and unplanned encounters
- H) Being present in the Loft is not supported/possible
- I) The physical space is a tangible representation of change & a showcase of PIP
- J) The feeling of creativity and freedom to work prevails the space
- K) Professional working environment, feeling of respect
- L) You can feel and ‘read’ the rules of the space
- M) Not enough clarity about the ownership
- N) New practices, new ways of working
- O) Barriers for communication
- P) Other people are the reason to come to the Design Loft

Quotes categorized under the themes of the thesis

Physical space

Describing Design Loft

“It’s our office where we are working [...] Unfortunately it’s like that.” (S1)

“...it’s an office, or I say that it’s a flat actually, that we have a kitchen, and rooms and we can work and also meet there, which is very important. [...] big pillows where we can lay in it. So it’s kind of a funny office.” (S2) **D, F**

“It’s a big space for us to work, where we can make our meetings and where we have the possibility to do our prototyping. But it’s also a place where we can meet the people from the other teams and if you want you can also learn here, if you have time before a meeting you can come here, sit to the table and learn a little bit. And you also have the possibility to stay here the whole day because you can cook [...] It’s not really an office, it’s more place for spending time I would say.” (S3) **D, E, G**

“...place where you can work and chill at the same time. And that’s the main thing I think, that you have Fatboys here and it’s not only a pure working place. And therefore you like to come here.” (S4) **D, E**

“The tables make it more to a working environment so it’s just not just for chilling out. People don’t hang out there, people work here. So they are working in every single room. I think the main purposes of the rooms failed kind of expect for this one, this is the meeting room (Big Bang).” (S1) **H**

“And then a lot of change because we really got a new place. [...] it’s really nice environment. So this was also a really good feeling because the last years the Design Lofts, or we called them PIP Offices, were not that nice.” (F1) **I**

“...mainly for students, 24/7, and creative environment, and flexible tables, different rooms, always some people, share coffee, some Fatboys - I’m always talking about the Fatboys because no one is used to the Fatboys.” (F1) **F, D**

“It’s a area of the focus to be creative and it’s working place and living place for the students to combine the life and the work at the project and there are some facilities to make that happen and to make that easier. So there is everything you need [...] So I think that was a big step forward for the project to give students that opportunity: nice atmosphere to work, also to learn in a nice atmosphere.” (F3) **D, E**

“A bit unusual working environment, which should not act only as strict, serious, limited only to productive work, in the old fashioned way environment. [...] whiteboards and different settings for meetings, coffee machine as a hub where we could meet.” (F4) **E, G**

“...I recently had a meeting with somebody from research department who told me about what they want to create and I said, well, we have that here - an alternative place how people can think and get ideas because it's not a grey desk and a grey chair, everything is colorful and open minded and different.” (F5) **I, J**

“...that they (the students) are a part of that and that they feel that without them nothing happens. So they feel also important. They are the ones who are actually doing the thing. [...] They have their own space 24/7 where they can meet, that's not happening somewhere else. It's like an identity. They feel home [...] they have space to be without asking permission, they can do their own thing, [...] I want them that they act that this is their thing, so that means they protect also what they created. And it's just a complete culture change.” (F5) **D, K**

“It's your place to be creative. You are free there, you can do whatever you want, you can work whenever you want. But you can also do other stuff that doesn't relate to work. Like having a party, drinking something, talking. ... you can't work all the time. And if you have the feeling that you go there for work I think it's much harder to work than you go there and 'hey, let's drink a coffee' and then you start working.” (F2) **D, E, J**

“What was also really good was all the stuff with the PIP Loft and that we have that place, I like that very much.” (F2)

“I was here in June last year seeing the Design Loft, or let's say the offices, and seeing it now it's really a difference. What for me was really surprising was that it's not that much stuff in here, which is new. So it's just Fatboys and... of course you arranged it differently, but I don't feel that it's completely new everything and still it's completely different feeling if you enter the Design Loft. I was not expecting that that we would have it because I know the offices before and I saw this office last year in June so I thought again working place, but not creative, relaxing environment where you feel comfortable. I was not expecting that.” (F1) **F, J**

Space development workshop

“And that we were part of building this, the office, that was nice.” (S4) **K**

“...there happened a little bit around the project with you, yeah the PIP development workshop we had with you, this was also really cool that we get a new facility and office where we can work and that we also have the possibility to do something with it that we can also participate the development of it.” (S3) **E**

“I liked it because then you feel a little bit that it’s also more your project and that you can also say that ok I’m working in this room where we, were part of it developing it. I think it’s then more ok, you feel more like home.” (S3) **K**

“We had this workshop with you where we let our minds free and come up with every single idea. And there were some really nice ideas and if we now evaluate ok, what kind of ideas did we have, what was actually realized, not a lot of things happened. You told us, you didn’t think that it would be so hard to realize those things. So I think that it’s also a university issue that they said ok no, which I don’t understand.” (S1)

Attractive physical space invites to spend time there

“...when I’m a bit tired or I don’t really want to work here, just come here just to, cause I have to wait for meeting, for other people, I just lay down, it’s very good for resting. And I also sometimes just lay on the pillows think maybe also on other projects that are really technical realization or something like that, also it’s very good also when I place it below the window, I can see the blue sky and it’s really good for inspiration.” (S2) **D, E**

“...if you have an office with small PC, small room and desk and so much work to do I think you don’t like to go there. Because then you know I have to sit on my table and do my work. And nearly every time I came here there was someone here and I could talk a little bit with them. And that we also have the space with the Fatboys and so that we can make a break and relax a little bit. I think it’s more comfortable to work here than in an office at the institute or something like that.” (S3) **D, E, H**

“I have here my lunch so I don’t have to go home or somewhere to buy something, I can just put in the microwave and eat it here and during I can work or making some private stuff. So it’s a really good way, and a good reason to stay here and be here.” (S2) **D**

“...typically you go to the university, you work there and then you go home as soon as possible. But if you come here (the Design Loft) you are working and having a beer and that’s another type of working.” (S4) **D, E**

“TRIZ workshop what we had here, I think for that it was a really good place we had big room and we could really be creative and brainstorming and some ideas which I think in a room, in the university, in a normal classroom it’s would not be that fun because you can’t use any materials and everything, so for that I can remember that it was a very good thing.” (S2) **F**

“I came sometimes here to work on my master’s thesis, not only for PIP but just because it’s nice here because I can drink coffee and there are other people.” (S4) **E, H**

“I had some friends of mine coming here and I was showing them these facilities and they were fascinated, they were like oh my good, this is a huge space. A friend of mine said he would be here every single weekend. And I have to agree with them, I like to be here and just by working, not only on the project but you can work for your studies. Well this never happened in the teams that, I think it’s more the agreeing to that ok, this is now a second home. What you suggested in the beginning, make it your second home.” (S1) **H, I**

“So it was not like everybody wanted to be there (in former PIP Offices), but here it started for the first time that everybody wanted to be here, in the Design Loft. So this was really nice.” (F1) **D**

“So if you are going there then you are just relaxing and you are not studying there (in the Nest common room) but if you are here (in the Big Bang meeting room) then you are always studying. And that’s maybe a little bit the same here. The lecture room you know immediately what’s going on there so it’s lecture, coming in, lecture, going out. And here it was kind of in development. So you feel immediately a little bit more relaxed and to feel creative it’s very the wrong definition but you know what I mean. You are feeling creativity and you know that it’s open-minded here and you want to tell everybody your ideas. And that’s the perfect environment.” (F1) **K, L, J**

“Well we used it for our department also to get some brainstorming sessions, which was interesting to see the comments of the colleagues who have never seen Design Loft before. I remember our vice rector from infrastructure and finance (referring to the vice president) who visited us as at the December meeting and she was surprised by the way of how we interact and what we do.” (F5) **I**

“...there are great opportunities to use the space, to show it to other people. [...] It might be a good idea to have a gathering again in April or early May [...] inviting the president of the university for half an hour that he sees what’s going on. If he sees that with his eyes and brings some industry people, that might be a good idea.” (F5) **I**

“... it’s what I see maybe, because it’s a little bit more colorful so the classrooms it’s grey like, that’s my feeling. So it’s more colorful with different colors like with the black and green Fatboys and then everywhere some posters, so in the classroom there is a white wall, there is nothing to look at and nothing to read or whatever.” (F1) **J, D**

Access to the space

“I think not all of the people are using this place like I do and some other people from other teams but what I think, what I see, it’s really that people who are here for Erasmus (student exchange semester), they are more often here and they really working and using this place,

but the people, the ordinary students are not. And I think it's connected to the time schedule in the university and other private life things because of course the Erasmus people have not that much friends and just people here and I think that's why they are more open to close friendships and to be more part of the team and a part of this whole PIP thing. It's not only the time availability but I think it's very important factor." (S2) **H**

"It's also this key issue that could be solved for next year. Because now we have only three keys in the team and then we have to change and some people would like to come here for some minutes but they can't because they don't have a key ... Yeah, this 24 hours open is a little bit... not really 24 hours." (S4) **H**

"So we have this open door policy, we haven't locked, we don't track who is coming in and coming out. We were thinking about mounting an IT security thing, [...] but we didn't install it yet. [...] And at the end we can say nobody stole something, everybody was committed and that's quite something'. If we can create this kind of a culture within a lecture, within a body of student, I think that's very special and it needs lots of work that students act like this." (F5) **K**

Social space

Space affords interaction and encounters through events and gatherings

"But on the other hand there was, it took a lot of time in doing all the things, organized the PIP staff and in this, if there is once a week something organized and we didn't came to our project. Because the people have limited time and they came to the nice events and we had to postpone our team meeting again and so on." (S4)

"...you just come here and have a coffee with someone, it would be great for me if you come here and meet someone and talk to them, ok, I'll now do my work a bit and then you talk again." (S1) **P, G**

"...we had some party, for example the juicing party [...] they (one of the teams) placed tables there and lot of mixers like side juice press and blender and lot of stuff and lots of fruits and vegetables and they printed out recipes [...] and the task was that everything was free, we could eat and drink everything but we had to prepare the juice on our own. And they recorded us because they were curious how people are using these kitchen appliances and it was just, they made some research but it was really good and very funny [...] it was not like prototyping and working on the project but still it was a bit connected to the project of one of the teams and yeah, I feel like motivated to help the other team but also just having fun during the time and that was a good." (S2) **F, P, K, E**

"But I think for me it is important to just get comfortable with the other people in here since I

can, like I said before, if I come in here and I have three teams in here and I feel like they are all strangers, you don't feel comfortable. So that's why, that's important for me [...] if you get closer, [...] it will be easier, since then the teams would work together and it doesn't take like one team each week to do that or one responsible person, it can also be like between the teams, people are saying ok we have an idea, lets do this! And everyone says yeah!" (S1) **A, C**

"Anyway more look like in Fall, because there was not only the project, there was also other activities. And I mean you also made the, I think it was you idea with this Christmas calendar for the Facebook and this is also an example for this, I mean it was, it was stressing that we get something good to make but it was also fun [...] this is something that doesn't really belong to the project but this is what makes it more lovely, that you can also have fun and not only meet the people when you are having a meeting and talking hard stuff so that you also have fun with them." (S3) **A, C, E**

"...drinking beer during or after the meeting and talking about the project and a bit resting with beer. [...] It depends on the team and the people but here it's very easy to make after a hard day, maybe not after a meeting, just if you have a hard day and you meet some people here, drinking a bit and thinking about crazy ideas, which are related to the project and you can find out some good things." (S2) **C, E, G**

"It's also a little bit chance to talk with the other teams, how is it going in your projects, do you also have the problem that this and this.. I think it's also good that the communications is still going on with the teams and not only within the team." (S3) **A, C, G**

"The meetings outside of the project. You forget about the project and you are there to meet the other people within your team, outside of your team, get familiar with them. And talk to them, get closer, make friends. Find common interests, therefore the wall with the pictures would be really nice, but yeah it took a long time, even for my team to finalize that. And yeah for me, just the communication between the teams and the team members is, yeah would be better. And there are a lot of people I would say I could talk to but I don't really have the chance because there are no events." (S1) **A, C**

"And if you have that (connection) between the teams already then people would stay here just to study, you know you can study for you university and just, I want to meet people, do something, get more familiar with the place. Maybe those events that they come more often, once a week. It's a lot of effort, once a week, but if you really do that I think it would be better. [...] you know we are almost 30 people and when I come here most of the time no one else is here. I mean now it's coming to the end people are in a hurry and want to get things done so they spend time in here." (S1) **A, C, P**

"The PD6 workshop, I couldn't be there unfortunately but I heard from my team that it was really exciting and they really loved it [...] everyone said that 'oh yes we won and it was cool'. I

think it was also for the team spirit good.” (S3)

“...December there we had the Christmas party before, oh even one day breakfast the PIP breakfast where you also invited the staff and older PIP members. This is also I think was a good possibility to talk with them. [...] it’s good to hear some more different perspectives about the project. And at the Christmas party then we, this was also I think more coming together, talking, everything.” (S3) **C**

“That (the spring term) was very... there was no program from the institute side. You can describe it with emptiness. Of course we had to work for our project, it was good that we had a lot of time but sometimes, for example if once a month we would meet or something, I can’t remember that there was anything like this, like today. Like if it’s only one hour, that’s ok, or that’s good. And you meet some other people that you don’t see.” (S4) **B**

“... from the institute side, there wasn’t so many events like when you were still here. So there wasn’t a breakfast.. I know that you also said that we can try to arrange it but anyway it’s still a little bit different because everybody has to study and we have to work for the project and it also would have been nice if there would have been more help or something...participation from the institute.” (S3) **B**

“Our team building was really cool [...] get to know all the people. [...] Then if you meet him next time at the office, you know him. It’s not a stranger.” (S4) **A**

“...it was also nice that there were a lot of students, so it was also difference to last years, there were normally only two projects and they were not really connected.” (F1) **C, G, P**

“...the christmas party...where a lot of people were coming to Design Loft, [...] we never had this before that so much people were coming for PIP, just for the final gala of course, but they were really coming so much external, not just students but external was, that was really nice. I was not expecting that actually. [...] if people are coming together it’s always good. You learn, you get to know the other people a little bit more closer and then you can work better together with them. And then the barrier that you are calling them is not that high anymore.” (F1) **A, C, I**

“...bring together the different teams, the different people and bring them talking together, talking about the same problems [...] I think it’s big benefit to bring them together that they are able to work together on the same problem. [...] without those events sometimes they never talk to each other.” (F3) **A, C**

“I think information exchange leads to lot of positive effects. For example this finding out opportunities to find solutions to your problems. Because just by talking to people, usually people in this project are willing to solve problems if they just know about it. So I think this just

chatting has the opportunity to find someone who helps me solving a problem I'm not able to do. [...] this style of using this resources I think it's necessary in professional life, it's valuable." (F4) **C**

"...right now it's about to, that people get to know each other, that's why I say communications is important, once they see the space and what students can do there and the result..." (F5) **A, C**

"...it was especially before and after the event that these people were standing around, having some coffee, having maybe some cookies, and in lecture classroom it's coming in, sitting down, lecture, going home. And here they were talking before, and in the break and afterwards. So that's what I liked because I think it's really important to talk to each other, so communication. [...] there you talk also really important stuff, so it's not only the lecture. So that's what I really liked and I think the students also felt really comfortable sitting here (Design Loft)." (F1) **C, G**

"The breakfast. That was quite good, I liked that. [...] it was come-together and you have the chance to talk about the whole PIP related stuff. We don't actually have that really much so why it was really good because we were at the place and someone could say 'hey look at there, can we do there something'." (F2) **C, G**

"...it was nice to see that there were some events where nearly all students were there, like the breakfast and the Christmas party and there was a strong community between the teams. [...] So I think those events are quite important but there are also some, I wouldn't say disadvantages, but I think it's very important that the motivation for such kind of events is initiated by the students themselves. I think we should, it's not a must for them, it's 'a should' for them and they should want it on their own. And that's the big challenge for the staff behind it." (F3) **C, M**

"Yeah especially the, you organized a breakfast once [...] which was nice, and the second thing was before Christmas when before you left, [...] which was a great day, because I can tell the inspired students and there was a visitor from a different department who afterwards walked up to me and said (Referring to one faculty member), it's unbelievable what you created here, I have never seen that before!' So that's exactly what I wanted to get, this kind of feedback." (F5) **C, I**

"Afterwards (in spring term) it was a big problem because the staff from our side was not ready to organize the whole events and then they said, 'ok then you organize it', we will be there but we have no time, we have to prototype and we have to work on our project, that's our focus at the moment. So in January, in February, there was nearly nothing in that context." (F3) **M**

Physical distance – Value of being present

“I think that basically for the university side they, now I don’t have the feeling that they take care of the project. Of course our project supervisors, but besides them no contact to the university. [...] I don’t see anybody (here) [...] Well you were here a lot of times, (referring to one staff member) was here once or twice, I saw that in the calendar but that was it.” (S1) **B, C**

“... we could work more effective, when we are here and not talking about the project but still we are together and we are thinking together, speaking, talking, and then I think when it comes to work we can be also more together. People need time to socialize, and not just socialize but when it comes to work together and there are some conflicts and we have problems or anything, it’s just better when you know the other people and they are not that distant people. And for that, for example in a company when you have a project and you meet with your colleagues every day and you are in-house together...” (S2) **A, B, C**

“I liked that very much that when I came here that people were here. Before, at the end of the year you were here and you were kind of the lead person or something and also our communication partner to the institute, and after this, in January, February there was nothing or, bad communication and no really meetings. For example today, this was again very nice and many people meet together and we didn’t have this the last weeks or months.” (S4) **B, C**

“It will be better that people would have more time for the project [...] this place is mostly used for prototyping or just working on the project and but I didn’t want to really force the people to come here and make things because they don’t have that much time.” (S2) **H**

“We tried to do it, especially our PIP supervisor meetings, we do them in here. [...] there are also some students here so we meet them and then we can already talk again and that’s the part of communication. So that’s of course also really important. [...] if you call them, you can’t talk about everything because you don’t remember everything. But if you meet them all the time, then you will have time to discuss all the topics, which are relevant. So meeting people is often better than just calling them.” (F1) **B**

“The students, if they see us and we are here, they immediately ask us about ‘when is the next meeting’ or ‘we just had company meeting, what should we do now’ [...], or ‘do we have a second, we have to go to the workshop, I’ll show you our prototype and I want to ask if you know where we can get this part’. So it’s just easier because calling me and asking do you know where I can get these parts, there is a barrier a little bit so they think they need some more reasons to call me. But if I’m already here and just talking to second to me, that’s easy.” (F1) **B**

“...it’s still, we are technicians. And like I mentioned before I’m also used to it, I’m not really used to being in a creative environment, just sitting on a Fatboy with my laptop and working. That’s not what I’m.. not used to it. I think it can help a lot of times, because sometimes you

also don't feel that efficient in your office. And then sometimes a little bit of changing to a place would be helpful... Yeah, still the barrier to walk 10 minutes and be here. And thinking that ok, maybe I'm not also efficient here. That's just barrier in the brain." (F1) **H, N**

"...they (the students) have the feeling that if they come, there is always someone you can ask, and sometimes this might be the only reason they come on that day but they come. Otherwise they won't. So there is always some life in the Loft and that's why I think it's important. Because (referring to one student) for example is coming very often here to the institute because he needed something for the flyers, then some other stuff, posters, things like that, or just wants to know something. And they (the students) have to come here, otherwise he would come to the Loft, maybe sit there, take a coffee, so he would spend some time there." (F2) **B, H**

"And I think it's very important and you need to be present at the office. You need the physical contact to the students. Because when you meet them and ask them 'do you have problems'" of course they say 'yeah, ok that's the problem' but when you don't meet them they never write you an email or call you, they try it on their own. It's easier for them to get in contact. Sometimes there is a gap between the institute staff and the students because they are students and we are staff. It's natural at the university but not, but I think not really important at the PIP because it's a really different connection between the students and the staff compared to other courses. But the students are used to differentiate between the students and the staff, the professors. ... it's all in our heads for four years and then they come to PIP and they need one year to bring it out." (F3) **B**

"...working at the institute. And a lot of traffic of students was just around me there was so much information flow going on, just by meeting people and saying.. I do either this or that. I do a meeting or I do team building. Either I go here for work, to the Design Loft, or I go there for a meeting, or I go here for having a beer or drink or whatever and this mixing up things, just getting to know what the others are doing just by chatting to whoever is here, 'hi how are you doing? What are you doing here, it looks interesting what you have on your table. We are just fighting for this and this small problem.' And you are already in the chat, in information exchange what the other team is doing. Instead there is much effort is done to write emails 'when can we do the next meeting' - 'we can do it then' - 'oh, at this time I don't have time' - 'we can do it then' ... This kinds of things." (F4) **B**

"There were not so many common activities in the spring time [...] I was mostly working with our team, with my team, and within the staff. I have to say, unfortunately. [...] I would have loved to get to know from the other teams and I also love to implement what we have discussed now to the people, and I think one good way to meet the people in person and put in the pieces that seem to be necessary or helpful at this point. [...] things you only find out if you meet with the people and chat with them." (F4) **B, C**

"...meetings with the supervisors, and then company meetings and some additional meetings

with the team if necessary. But unfortunately I'm not really working here, it's.. I don't know it's.. I need lot of contact to other colleagues so I need to call them fast or some of them are sitting next to me or there is a new colleague sitting in my room now in the office so we can talk fast and easily. And sometimes I feel I'm a little bit more efficient in my office compared to here but I would like to be here sometime but currently I'm really busy so you need all the information and all the printed some things and then you need it fast and I don't want to carry it all to the Design Loft. So that's a little bit problematic. Maybe if it would be closer..." (F1) **H**

"I got the feeling that I have try to get strong connection to my teams again, because the events I saw the teams all the time and then there were less events in the beginning (in the spring term) so I didn't see them. So I had to do the first step towards my teams that I knew what they are doing. And then I also felt that they don't tell me all the problems so I thought that maybe they would easily talk to you about their problems but they didn't talk to me immediately. Because they felt comfortable with you but not with me. If you were talking with me, it was for me also then easy to talk with the teams and in the comfortable environment but now they have to talk to me again and there is again the professional relationship. So I had to evolve a little bit more into the projects." (F1) **B, C**

"I think this is quite the same than it was, because the students like to go there and that's really important, that's why I mean in the beginning it was really important that you were here. So they had the feeling that 'hey c'mon, they are doing something, we have to do too'. That's why I don't think that it's a big difference if I compare it but what I think is that it would be much better if we were able to be more often there." (F2) **B**

"And starting this year, with this Design Loft, three teams, lot of students, so there was always some people here, especially you. That was of course helpful, that would be nice for the next years but we don't have the time as (referring to the staff members) to be here all the time." (F1) **B**

Mental space

Feeling, rules, and affordances

"What was nice was the new ways of working, that we got some introduction, the IDEO video, you showed some things, the PD6 workshop. So I liked very much this guiding in the creative process because we have no experience yet in conducting workshops and so on and it was cool that it was completely different to the typical engineering task or way of working." (S4) **N**

"I like the atmosphere in the office, that we have here a place to work and that the meetings are not that official, rather informal and also that you can eat during the meetings and so on." (S4) **E, J, K**

“Your role was that you actually reached us, showed us how can we really work here, like in a workplace but still it’s some kind of funny workplace. Just to involve fun and working and combining the benefits and I think it was quite good and also what you made, organizing this whole area and this mentality that which still works for example like this the rules and to make everything... yeah like in down under that we make ordnung (having things in their right places), that we clean up after we finish the work and we need to be able to work three teams in actually one building, in one place. I think it works quite good so we don’t have trouble [...] So like this Google excel sheet we place every time when we have meeting [...] it works very well. [...] you predefined for us the preconditions. Let’s say that we need to organize the place, organize the internet based schedules. Like the mentality of the whole place.” (S2) **D, E, J, N**

“I’m glad I have a team where we can also have fun in the meetings. It’s not a special event, it’s more that nearly every time we are here somebody of our team says something stupid and then we all have a little bit of fun. [...] It’s really good, because if everyone would just sit here working, working, working.. [...] When we had [...] the innovation day at (referring to the sponsoring company), where we had to present our first ideas, our first mock-ups, we said that ok, we just have some things which Styrofoam and they really look like crap and then we bought some sprays and then we were, not in down under but, in front of the building and then we sprayed it [...] we were just joking and everything...” (S3) **E, F**

“Yeah, people still come here to just to be here and to work. Not that often I think [...] We changed some things, like for example the list, where to put money in, because people don’t pay, they just make a lot of list, and then we have no money in the jar, so now we have to pay immediately. It’s also not the perfect version, since the people have no money and then they forget next time to pay. ... I think the responsibility for beer and milk was preserved, that’s still working good. That’s really important. Because if you come here you expect that beer and milk is here if you want to have a coffee or something. ... That we reserve our rooms, not everybody is writing when he is here but if we have the big meetings it’s in the calendar. So the calendar works.” (S4) **H, N**

“It’s more that you become a little bit more familiar with the people so when someone is working over there you go and say ‘hello, how are you, how is it going with your project, what are you doing’ and not that you go in to your room and let the other people sit there. But that you also talk a little bit when you make a break or something. So that’s what I think is the benefit of this.” (S3) **A, G**

“...our second video what we created for the Facebook calendar, it was very good, we enjoyed filming when we were just running around the table and filmed it and when we were finished we just laughed together on the video and I think that was also very fun. Funny to work together not on the project itself. I had a feeling then that it’s just wasting time and we don’t focus on the project but now I see that it was really worth it that we had some funny events and for the first weeks, months...” (S2) **E, J, N**

“Oh yes and in the beginning of November we made a team building with all three teams together at the hut for one weekend. This was really good because I think without it this and even if we weren't all three teams together then we wouldn't know each other so good. And also since we had to work here (Design Loft) together and so I think this was really good.” (S3) **A, C**

“In some way I mean the guys from the institute are also really nice and if you need help they'll always help you but I don't know if it's just for me but anyway you have the feeling it's more a little bit of distance. Since they give you the grades and they are the responsible people for this project. I think it was always that you talked a little bit in a different way with the people from the institute than with you because with you can also talk oh yeah, how was your weekend or anything like that and you don't do this with the institute.” (S3) **O**

“And also if we needed help or anything you always were there and I think it is also that you were from Finland, from Design Factory that's also a really positive aspect that you know how it's going on there and how it should be going. You also tried to implement this here a little bit.” (S3) **N**

“It's maybe not the perfect location for lecture, like we are used to it, because we are used to have rows with seats and tables, so really strict but that's how the technicians are working, because I need a table, I want to draw and I want to write down, so if I'm sitting on a pillow, I can't write down really easily. So that's where I have to get used to it. But I think it's a perfect environment if somebody is standing here at the Design Loft and doing a lecture, it's more creative, it's more open, it's not that strict that nobody has to stick to the rules. And here it's a little bit open. That's what I really like and that's the reason why we really would try to do all the lectures here.” (F1) **N, J, L**

“I think it's the students, they feel strong as a group, they feel as peers, they have the opportunity to present something, they exchange their experiences with other people, not just within the group but with other groups in a formal, more formal event.. or it's not formal, it's an event where you talk easily to all kinds of people who are there, in an easy way, not with tie and a suit, [...] It's like a big group where we are all fighting for the same goal. I think that motivates the students, I don't want to see the difference between professors and students. I want to be that we have different roles and we drive the same project.” (F5) **C, O, L**

“...it's (referring to the Design Loft) something completely different in Austrian universities and that's why. It doesn't just look different but it is different. The feeling you have when you are there, you are just like 'oh I have to sit and just look and don't move'.” (F2) **J, L**

“I think it's the environment you have to create and in this environment the students feel comfortable and then they are more open, can discuss easily and then, that's the environment they need I think, because to be creative you have to feel comfortable. If you were sitting on a classroom row by row then the creative process will not flow of course because it's really

difficult. But if you feel comfortable and then you are allowed to say anything you want and you can do it or write it down immediately and nobody will criticize you for your comments [...] That's a creative environment. Everybody who is coming here feels immediately I can say whatever I want, it's open, nobody will criticize." (F1) **D, J, N, L**

"It should never be that you have a real life and working life, for me it should always be one. And that should be the target for everyone I think. If you can combine your life and your work and you don't have to differentiate because everything is nice..." (F3) **E**

"I think it's the details maybe, so it's flexible, so it's not that strict because normally everything is very strict and then little color like mentioned. And maybe the pictures on the wall, that's nice, you get a good feeling because you see the people who are here normally. Yeah, the face wall. And the coffee machine, you recognize immediately I have to pay 50snt and then I can take a coffee so you don't have to ask anybody you see, put in there some money and take a coffee. Or you take a beer if you want to. And it's everywhere, it's described the rules or.. so I really like the vinyl cutter so I think that's helping a lot. Because you know immediately where to find what and what are the rules and what to do." (F1) **F, L**

"So here it's saying around some information and some hints what you should do, how to.. some rules, what you should do in here, and then.. I don't know, I think it's not that it's immediately (snaps fingers) here the feeling, but with the lectures in here it was really.. wie sagt man lockere.. relaxed environment. So that's what you learn after some time. If you are always here together and you also make breakfast together or coffee or some parties together, then it's really relaxed environment." (F1) **D, L**

"I think there were high officials, guests here who might have never before worn pink shoes at meetings. I think that's something, it's a small sign but I think it was important. When I think at the Christmas party, I think that was this kind of event. [...] Über seinen Schatten springen (saying: stepping out of the comfort zone). [...] I think it's obvious step to do something, which you thought first that it's completely crazy but then you find out 'it's ok', it doesn't hurt. [...] I think they enjoyed it, they felt comfortable in the way people were acting here. Maybe especially because it wasn't their usual way of working together." (F4) **C, N**

"I just like the way take out the old stuff and put some creative stuff and you have, I don't know if I'm there I have the feeling I can do something, I can create something. ... Especially me creating ideas and being open minded." (F2) **J, N**

"I like that everybody speaks English there, also the Austrians, it's more easy for them to talk English, I have never seen that before. That's interesting, it's like you can feel the international culture there, even when half of the people, or more than half of the people are Austrians. That's pretty cool." (F5) **N, O**

“...it sometimes was about ‘ok, maybe not laying around on the ground’ [...] if we had external lecturers, that they think about that they are lazy and not really want to do, but I thought that ‘ok, students have to learn on their own’. So to tell them, ‘c’mon, sit straight’, it’s not my work. It’s what they have to learn on their own. I don’t know how it is in Helsinki, if they are also sitting in... it’s ok to sit on the pillow, but some of them were really laying and sleeping during the lecture [...] if the lecturer sees that the students are sleeping I think ok, he thinks he is boring the students and then he will maybe not come again [...] there was no negative feedback, it was just the feeling we got. But that’s also because we are not too used to lectures like this. So sitting together on a couch, that’s not how we are working at the university of technology. But that’s what they normally say what we are making wrong so that we are really strict and focused and straight sitting on the table, listening to the lecturers, doing homework, going home. So the creativity, it’s sometimes a little bit missing. That’s also the part what, where you helped I think a lot. To understand how the environment should be to be creative because that’s where we have a little problems I think.” (F1) **N**

“Hugging point, really nice idea, maybe not comfortable for technicians immediately, so we still have the hugging point at the institute also, I recognized that students are a little bit confused, they are not used to something like this, problem is also a little bit that we have a lot of male students so they don’t feel comfortable to hug each other and we also have girls at the university of technology but they are studying architecture or civil engineering and they are placed anywhere else, so to another campus. So at the new campus there are normally just guys and they are not used to it, and it’s also pink a dot, so they don’t feel comfortable. So I can feel the fear of the students, [...] Really stupid thoughts, but that’s what they feel so they want to be cool, they always have to survive in this environment, so if there is just boys, they always have to show who is the strongest. And you can’t be the strongest if you hug anybody else at the university. That’s where I see the problem a little bit. But here in Design Loft it’s different, here it’s no problem. I don’t see that much at the hugging point I have to say but I feel comfortable so that’s ok here, and here it’s even better because everybody knows it’s ok. And in here nobody will blame you, will criticize you, therefore you can also hug.” (F1) **J, L**

Beyond the space

Role of a project coordinator

“...we need someone or somebody has to be in charge of this place because I don’t have time and other team managers don’t have time to organizing stuff and putting stickers somewhere and it was really good that you help us [...] It’s easier that we just speak about it really open here and not just ‘ok, I will write a formal email’ or go to the institute. It’s not that good feeling just to go to the institute and ask (referring to one of the staff members) that we would like to make something.” (S2)

“After (the fall term) no one took care of the whole facilities. [...] organizing this breakfast and just do it, just someone has to do it. And people will show up or won’t show up but someone has to take care of it [...] the teams are focused on their work so it’s someone out of those teams who says that ok let’s do this because they are also like ‘we don’t need that’ like, there is the team who says that ok we don’t need that, but if someone organizes, they will still come. Or like the Christmas party, like I know that in the beginning everyone agreed to a Christmas party but it still takes someone to organize it.” (S1)

“That person will take a load of the teams, so that the teams have this connection to each other this person is kind of in charge to keep the connection within the teams. It’s hard I guess and but if you have a person who will tell like ‘ask this team, they were talking about that’ then they will, this person will bring the persons together. [...] It takes someone to take care of the whole project.” (S1)

“I think you were the person who tried to make the whole project more than the work. So that you organized the breakfast and the Christmas party and also the development workshop for the office. It was more, it was also very fine when you came to the Loft and you were here and you had someone to talk with, it was, you made it more angenehm (comfortable). [...] It was anything that through these events you brought people together, that you brought them together to talk with each other.” (S3)

“You just organized things or said that ‘we make this and this’ and it was good communications, everybody knows what’s going on and because, and this was totally gone when you were gone. Because there was no communication and for example from the institute side we didn’t know until today or officially nobody knew what’s going on today (a meeting regarding the final gala took place on the day of the interview) only from by chance I met (referring to one faculty member) last time by prototyping and he said yeah, (referring to one faculty member) will write an email, [...] And no email came or it came two days before [...] They want us to plan but it doesn’t look like they plan that much ahead. [...] there would be one guy from the institute who communicates more often with us.” (S4)

“It was kind of one responsible person [...] not directly working at the university, because the teams see us as supervisors of course, but they also see us as the guys who give them the grade for the PIP. So and it’s not the only course, so students are also sitting in my other courses so they are not completely sure if they can really talk that open minded with me because they think about ‘maybe I’m saying something wrong and then he thinks I’m stupid’, or ‘he does not like me’ and I have problems in my other courses.” (F1)

“Everybody was talking to you easily and told you their problems and was really happy being with you and the students with me were always ‘ahja, he is a supervisor, it’s a professional relationship so take care what you are talking about’. They are responsible for the company and we talk with them about the company stuff and important stuff but not really about problems

because they thought that if they talk about their team members that they are not working very well anymore – then they blame the others so they didn't want to do it. Because I would give them a bad grade or I would kick them out of the project or whatever.” (F1)

“...you had different roles. One of them was helping us as supervisor team, kind of showed your experience, what you did before and helped us to organize and to have the regular supervisor meetings and how to deal with different problems and so on and then you were developing PIP so means Design Loft, organizational things, little bit connected to the supervisors, the meetings then the events you organized, then this was for PIP, but then you were also a kind of family member for the teams, and you were little like between the teams and us. So you were the connection point because like mentioned before, kind of professional relationship to the students and you were the connection.” (F1)

“So they easily talk to you about their problems and they you come, were able to mention it in our supervisor meetings. So maybe they would not talk to me about their problems immediately at least. It was kind of connection point of the supervisors and the teams and then all the organizational stuff, developing further the PIP.” (F1)

“This (communication) doesn't exist that much as it did when you were here. Even though we have appointments and stuff like that.” (F2)

“The university staff. And what I mean with the special person for the PIP, it's not a traditional university staff. ... you have different responsibilities as traditional staff of university assistant. So the number says 40% research , 40% courses and 20% administration. And the main target of the university assistant is the PhD. A day has 24 hours and nobody spent 40% on research, for the PhD project.” (F3)

“...up to December it was more intensive team feeling than the years before of course but I think there two reasons: once the new rooms and the new opportunities for the students and of course your presence and you managed all the stuff to bring them together and spent a lot of effort to do this and that situation was quite new because the traditional staff never spent so much time there and never spent so much time bring that forward. Was definitely a new and good situation for this year's students. So the traditional staff never had the main focus on PIP. PIP is one of the projects of the traditional PIP staff and it was a big difference seeing you with the focus on the PIP. And I think that would be opinion for the future also, for the PIP to have one person with one project and that project is Product Innovation Project.” (F3)

“My opinion is that it was very important this year that you were present here with the big experience from Helsinki and motivating the people. [...] your presence at the office and your experience in projects like this and your enthusiasm regarding this project was quite motivating for the people. And it was true motivation because you know it really [...] And I think it was great for the people to get that deep insight from your side.” (F3)

“Ideally, in the best case there is someone who hosts it and who is living this project and has the time to spend much time with the project. And not just sitting there and talking with the people but combines it with his or her personal interests. [...] so I think the ideal PIP would have at least one person who is valuing this as his/her environment to Selbstverwirklichung (expressing oneself) not just only for fun because you usually can’t afford this to certain extent but to combine with his personal interests also in research. I think that would be one perfect thing. Then an environment that is even more than this supporting this accidental meetings of people, just crashing into each other and having to talk with each other because for any reason, because they are fighting for the coffee machine [...] And I think the actual, I think there is still room for improvement concerning these teaching objectives and understanding the process. That would be also the ideal PIP.” (F4)

“...I think you left before Christmas, I think you got this feedback already but this it was not possible for us to keep up this lively spirit after Christmas I would say. And we had discussions about how to keep this up right and I got the feeling that, for example we had the discussion that how can we keep up the visibility of this Facebook page and then there was email sent that ‘please post something’ and it was understood like ‘oh now we got an order from the supervising staff and anyway we have so much work to do but we still have to do this as well and we have so much work’ and then it was also like ‘organizing the breakfast but it’s so much work’.” (F4)

“We were working pretty hard in October making sure that the facilities are up and running. The students are grouping and when you started I can tell that the whole department was inspired by your drive, how you took charge, how you behaved that you are in charge of driving that thing and that’s what PIP needs. Somebody who is in charge, somebody who drives and that was clearly the case when you were here in October-November.” (F5)

Change agent – to be embedded or not to be

“...that’s (being an external) useful. Just talking, because as a project manager you can talk to other project managers but there should also be, I can’t describe, that’s a special case if there is an external person who is a little bit involved but doesn’t really belong to the institute.” (S4)

“...you were here in the beginning and I met you before the kickoff so for me it was like you are also part of the team. But it was good that, I didn’t feel that you are, belong to the university, to the institute, and this is very good that you often worked here and not in your office. So yeah, I had the feeling that you were the boss of this place and something like... but it was like, not the best expression because I had the feeling that you are on the same level as we and we are just using this place for our project and for also private or other university things.” (S2)

“...yeah you are also talking to the institute but you are an outsider and that’s different. Because

maybe students think that the guys from the institute rate you or give the grades afterwards and it's not that friendship communication. [...] you can't talk that open for example. You don't say that 'no, we don't have a plan'." (S4)

"Because we don't have that much experience and that was helping us a lot. We saw the Design Factory but it's not that easy just to copy Design Factory, so for me, just to put a hugging point there.. I think I wouldn't have done it. It's just, you have more experience, you really know how Design Factory is working so you were, for you it was easier to do some initiatives here. For us it was more difficult. And the developing steps, if we would have done it, it would be kind of developing, but just really incremental steps. And you were coming with all your experience and there was a really big step. So it was really changing a lot. That was helping a lot." (F1)

"Your role was to roll the ball, you bring everything to move. I think it's very important to have someone like that. If you ask me. Because you are from the other side and you don't have the feeling that you have to fit in the whole structure and that's why I think it's kind of easier if you bring the ideas even though the others can have them too but I think this is really important especially in the beginning to understand that thing about PIP and stuff." (F2)

"Yeah there was much cases, not just one. If we start with the PIP Loft, there was so much stuff that if we would say that, it would have no relation to it, 'c'mon, what should we do with that', for example the rolls on the tables, still don't see the thing in that even though we tried to have them in all the tables but we have two now. Especially those stuff, they don't have to be the big ones, the small things that, and I think this really makes the change in the whole stuff. Because the small things you usually don't see and the big ones of course everyone sees that but... it doesn't have to be with the Loft stuff but if you bring an ideas how to go on or how to do the organizational stuff, this was also something that they (referring to the faculty) really welcome from your side. [...] if you hear it from someone who is not really a student of them (referring to the faculty) it's kind of bit different and then they think about that and say 'ok, might be true what they tell us'." (F2)

"I'm seeing it now what happens when you are not here now so I really can see the difference what it means to have something external here. ... It was a big movement when you were here and then it stopped suddenly. [...] It's harder for me than it was for you I guess. Because you are someone external, they think you have seen much of the stuff so they listen more to you, maybe it's some kind of respect too I don't know, and that's why I think it's good. Especially in the beginning, because if it was going on like that, if you weren't here we would still somewhere, loosing ourselves in the Loft and trying to put something inside." (F2)

"... at the beginning there is a little, let's say distance, more respect I think, I think in your case it was a special situation because some of staff and some of the students already know you and you were already here in Graz and everybody knows that you are product development project woman. So you know what to do, how to do and you did it on your own. So I think the respect

regarding this topic was really high. [...] I think you need the right persons at the right time to the project, that's the most important thing." (F3)

"I think your huge big advantage was that you are not covered with daily administrative and other teaching work like the other university staff of the institute is because there is so much other things to do like teaching courses, correcting or supervising diploma thesis, exams, other projects, [...] for someone who is external and the most if someone is from, not from the city, but completely outside, it's (the work) basically the content of your daily life here. And I think that makes a huge difference and I think that was, or that is a huge advantage and as well what is very helpful in your case is that you have seen a lot and that you have a huge set of stories, of knowledge, of whatever, you have seen so much that you know what to pick in a certain situation. And I think that's necessary. Actually I don't like if people don't like the project too much and start first reinvent the wheel and then we have the wheel.. And I think it should also be prevented a bit in the future. That someone who has no experience tries to reinvent the wheel before understanding what's already existing. And also respecting what is already existing. It doesn't have to say "oh, that's everything good and we don't have to change it", I'm the last one who says that there should be changes, maybe all the time, but you should understand why it is like it is and then if you find something better or you just want to try out, but you have to understand it." (F4)

"So that was a great experience to have someone from outside which was important for me. I know we only can change the culture by combining somebody new from outside with the talents we have inside and this new organization changes a little bit the culture." (F5)

Transferring ideas

"And I'm thinking will it be the same with the new teams next year immediately? So is it really the environment or this kind of, do we have to trigger it to support it, that this feeling of relaxing environment is coming again. Or is it just the place, so the place is important, or is it also a little bit what we are doing as supervisors in here. Because we are also acting differently I think. So that's the question but I think we will see it. If the students acting like last fall, then it will work, otherwise we have to try to force them..force them is wrong but to support them. That they also get the feeling that this is good creative and relaxing place." (F1)

"...you were starting with lot of initiatives and you were working with the initiatives and we had to think about what are we doing now, how to further go on with the initiatives and who is doing what. So it was a little bit more work for us of course and we had to share the work that was the gap." (F1)

"To do as much as possible events here. That the students are here as much as possible so organizing breakfasts, relaxing, or parties [...] just coming together in the evening having some

beers together and just relax. [...] So to be here as much as possible, then the whole place gets kind of an dynamic, so everybody wants to be there because there are always a lot of people so you feel comfortable here. So maybe that's the point they have to feel comfortable in here. And therefore they have to be here some time and get the feeling that they can do whatever they want. So some events here would be helpful maybe. That means also doing meetings in here, doing just meet some students, prototyping, each discussion should be in here. That they really make a feeling that this is a working creative environment." (F1)

"The problem is since you are gone, some stayed, I think that the students stayed on that level, which is the most important thing, (referring to the faculty) I can see that went back to normal. So that's why I think we need somebody like a communications manager or something. But the whole autumn was very active." (F5)

"I don't know and maybe this is something we, I don't know how, but I think during the time you were here you were driving a lot. So basically you were organizing things that were seen as... so sometimes you said 'oh, it's not so much work' but for others it looked like 'oh, that's huge organization effort to do this' So maybe... The salad. Or the breakfast. Sure it would work to organize, but it's maybe not that much work as you think outside it is. If you just do it and not spend so much time in trying to find others to do it - three project managers 'oh we have to find a date to organize it'. You just do it on your own with two or three guys who are interested in, you just meet here, you don't need the project managers to organize something with the other teams." (F4)

the 1990s, the number of people in the UK who are employed in the public sector has increased from 10.5 million to 13.5 million, and the number of people in the public sector who are employed in health care has increased from 2.5 million to 3.5 million (Department of Health 2000).

There are a number of reasons for this increase. One of the main reasons is the increasing demand for health care services. The population of the UK is increasing, and the number of people who are aged 65 and over is increasing rapidly. This has led to an increase in the number of people who are in need of health care services, particularly in the areas of long-term care and mental health services.

Another reason for the increase in the number of people employed in the public sector is the increasing demand for health care services in the private sector. The private sector has been growing rapidly in the UK, and this has led to an increase in the number of people who are employed in the private sector. However, the public sector still remains the largest employer in the health care sector.

There are a number of challenges facing the public sector in the UK. One of the main challenges is the increasing demand for health care services. The population of the UK is increasing, and the number of people who are aged 65 and over is increasing rapidly. This has led to an increase in the number of people who are in need of health care services, particularly in the areas of long-term care and mental health services.

Another challenge facing the public sector is the increasing demand for health care services in the private sector. The private sector has been growing rapidly in the UK, and this has led to an increase in the number of people who are employed in the private sector. However, the public sector still remains the largest employer in the health care sector.

There are a number of ways in which the public sector can meet the increasing demand for health care services. One way is to increase the number of people who are employed in the public sector. This can be done by recruiting more people to the public sector, and by providing training and development opportunities for existing staff.

Another way in which the public sector can meet the increasing demand for health care services is to improve the efficiency of the public sector. This can be done by reducing the number of people who are employed in the public sector, and by improving the productivity of existing staff.

There are a number of challenges facing the public sector in the UK. One of the main challenges is the increasing demand for health care services. The population of the UK is increasing, and the number of people who are aged 65 and over is increasing rapidly. This has led to an increase in the number of people who are in need of health care services, particularly in the areas of long-term care and mental health services.