A!

Aalto University

Aalto University Design Factory in the eyes of its community

Design Factory Research Team:

Tua Björklund
Maria Clavert
Senni Kirjavainen
Miko Laakso
Satu Luukkonen

A" Aalto University

Aalto University Design Factory in the eyes of its community

A report of a study conducted by Design Factory Research Team:

Tua Björklund
Maria Clavert
Senni Kirjavainen
Miko Laakso
Satu Luukkonen

Summary

This report concerns Aalto University Design Factory (ADF), one of the spearhead projects and first physical manifestations of Aalto University. ADF aims to be a 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. Since opening its doors in November 2008, ADF has strived to achieve these by providing a non-hierarchical, constantly developing collaboration environment for students, teachers, researchers and business practitioners across hierarchical, professional, and disciplinary boundaries.

At the time of the study reported here, the ADF platform has existed for three years, making the time ripe for reflection on how the key principles and ideas behind ADF have manifested themselves. The report presents the findings from a series of interviews conducted in order to map the experiences and perceptions of the ADF environment held by its community members. Explicating these experiences and how the key principles and ideas behind ADF have manifested themselves benefits the development of the ADF both within Aalto and with international collaboration projects.

The report is mainly based on the in-depth interviews of 51 ADF community members representing all of the different major, regular ADF community groups in terms of background and positions, supplemented by 177 interviews (screened for clear explicit references to ADF) conducted previously in other research projects and a week of observation of interaction initiations at the ADF Kafis, the café-office-kitchen of the ADF building.

The interviews explored the experiences of the community members with an open-ended story-based format in order to remove any influence of the possible biases or presumptions of the interviewers. The analysis was based on grouping interview segments according to thematic similarity, resulting in descriptions of the experienced typical characteristics of interaction, action, support and personal work at the ADF, as well as in the perceived characteristics of the ADF entity itself.

The results do not offer proof of whether these perceptions are accurate in an objective sense, but they reflect what the community members themselves perceive to be true. The results thus offer insight on what the users of the ADF value in the environment, why they have

chosen to act on such a platform and what the costs and benefits have been for them.

Interaction: ADF was perceived to offer great potential for collaboration, especially due to the physical proximity and diversity of its community members. The tight community was experienced as a home base, and integration to the community was described as crucial. Getting to know the staff members and actively participating in events lowered the threshold for further interaction, as did the warm and open atmosphere. However, finding the initial entrance to the community, as well as keeping up the community spirit and welcoming atmosphere were described as somewhat challenging issues.

Action: Shared characteristics found in the actions pursued by ADF community groups were perceived to shape the ADF as a whole with informal activities and interaction perceived as crucial success factors promoting a fast pace of interaction and implementation, and open sharing within the community. The community members had in general been active in initiating development in their own work and in collaboration with others.

Support: Nearly all interviews contained experiences of receiving either intangible, or concrete support from the ADF community members, especially members of the staff. Receiving support often taking the form of small acts of help and positive reactions, along with positive examples, had sparked enthusiasm and courage in interaction, development, and experimentation and seemed to be particularly significant for students.

Personal work: Many of the experiences reported by the community members described the content and qualities of the interviewees' individual work. Commonly shared features included perceiving one's work as motivating, conductive to learning, and possessing a high degree of freedom, and undertaking development activities. For many ADF community members, spending time and working at the ADF had helped them in discovering and clarifying the role and goals they wanted to pursue in their careers through exposure to new situations and application opportunities.

ADF entity: The experiences reported by the ADF community members related to the ADF entity itself could be roughly divided into three types: perceptions and effects of the ADF physical manifestation, perceptions and effects of the ADF structures, and the role and effects of the ADF within the Aalto University. ADF facilities were frequently noted to support and enable a wide range of activities, interaction, experimentation, and the work of students. Lack of bureaucracy and a high degree of flexibility were perceived as key ADF characteristics in enabling development, while as a downside, some negative

experiences were described related to e.g. unclarities and lack of overall flow of information.

The present results illustrate an abundance of pursued development activities and interaction at the ADF platform by its community members, although there clearly also remains untapped potential for creating and seizing such opportunities. Indeed, the results offer a glimpse on what has made the platform successful in the eyes of its utilizing community, as well as some insights into further developing the ADF and similar platforms. Especially three features seem pervasive across the different experiences and perceived aspects of the ADF platform: taking the smalls things into consideration in conveying a development-promoting message, creating a critical mass to sustain promoting development, and actualizing development collaboration potential.

Tiivistelmä

Tässä raportissa tarkastellaan Aalto-yliopiston ensimmäistä konkreettista ilmentymää ja erästä sen kärkiprojektia, Aalto-yliopiston Design Factorya (ADF). Design Factory pyrkii edesauttamaan kokeellisen, ongelmalähtöisen oppimiskulttuurin syntymistä tarjoamalla kokeellisen toiminta-alustan poikkitieteelliselle opetukselle, tutkimukselle ja yritysyhteistyölle. Avattuaan ovensa lokakuussa 2008, ADF on tavoitellut parempia oppimistuloksia tarjoamalla epähierarkkisen, jatkuvasti kehittyvän yhteistyöalustan opiskelijoille, opettajille, tutkijoille ja yritysten edustajille yli ammatillisten ja alakohtaisten rajojen.

Tämän raportin kirjoittamishetkellä Aalto-yliopiston Design Factory on ollut toiminnassa jo kolme vuotta. Onkin syytä pysähtyä tarkastelemaan, kuinka Design Factoryn toimintaa ohjaavat periaatteet ovat käytännössä toteutuneet. Tässä raportissa esiteltävät tulokset perustuvat lukuisiin ADF-yhteisön jäsenten haastatteluihin koskien Design Factoryyn liittyviä kokemuksia ja käsityksiä. Näiden kokemusten tarkastelulla pyritään luomaan pohjaa Design Factoryn jatkokehitykselle sekä Aalto-yliopiston sisällä että kansainvälisesti.

Raportin pohjana oleva empiirinen aineisto koostuu 51:stä ADF-yhteisön jäsenen syvähaastattelusta. Haastatellut edustavat taustaltaan ja asemaltaan kattavasti ADF:n eri säännöllisiä käyttäjäryhmiä. Näiden haastatteluiden tukena hyödynnettiin 177:ää aiemmin eri tutkimusprojekteissa tehtyä haastattelua, joista hyödynnettiin vain suoranaisesti ADF:ään liittyviä kommentteja ja kokemuksia. Lisäksi aineistoa täydennettiin ADF:n Kafiksesta (kahvila-toimisto-keittiö-konseptista) viikon aikana kerätyllä, vuorovaikutusaloitteita koskevalla observaatiodatalla.

Mahdollisten ennakko-oletusten ja –asenteiden vaikutuksen minimoimiseksi ADF-yhteisön jäsenten Design Factoryyn liittyviä kokemuksia tarkastelevat haastattelut kerättiin narratiivisilla avoimilla kysymyksillä. Aineisto analysoitiin ryhmittelemällä analyysiyksiköitä niiden temaattisen yhdenmukaisuuden perusteella. Lopputuloksena saatiin tyypillisiin vuorovaikutuksen, toiminnan, tuen ja henkilökohtaisen työn sekä Design Factoryn itsensä koettuihin piirteisiin liittyviä kuvauksia. Objektiivisen ADF:n piirteiden kuvauksen sijaan analyysin tulokset antavat viitteitä siitä, kuinka ADF-yhteisön jäsenet kokevat nämä piirteet, millaisia asioita he arvostavat tässä toiminta-alustassa, miksi he ovat tehneet valinnan toimia Design Factoryllä, ja millaisia hyötyjä ja ja haittoja he kokevat Design Factoryllä toimimisesta itselleen koituvan.

Vuorovaikutus: ADF:n koettiin luovan runsaasti mahdollisuuksia yhteistyölle erityisesti sen yhteisön jäsenten fyysisen läheisyyden ja erilaisuuden ansiosta. ADF:n kiinteä yhteisö koettiin tukikohdaksi, johon sisäänpääsyä pidettiin tärkeänä. Lämpimän ja avoimen ilmapiirin sekä henkilökuntaan tutustumisen ja aktiivisen ADF:n aktiviteetteihin osallistumisen koettiin alentavan kynnystä vuorovaikutukseen. Toisaalta yhteisöön sisäänpääsemistä sekä yhteisöllisen ja tervetulleeksi toivottavan ilmapiirin ylläpitämistä pidettiin joissain tapauksissa haasteellisina.

Toiminta: Yhteisön jäsenet kokivat ADF:n vaikutuspiirissä suoritetun toiminnan muokkaavan ADF:ää kokonaisuutena. Nopeaa implementaatiota ja yhteisölle leimallista avointa jakamista edistäviä epävirallisia aktiviteetteja ja vuorovaikutusta pidettiin ADF:n kriittisinä menestystekijöinä. Yhteisön jäsenet olivat tyypillisesti toimineet aloitteellisesti oman työnsä kehittämisessä sekä yksin että yhteistyössä muiden toimijoiden kanssa.

Tuki: Lähes kaikki haastateltavat kertoivat saaneensa ADF-yhteisön jäseniltä, erityisesti henkilökunnalta, joko aineetonta tai konkreettista tukea työlleen. Pienet avustavat teot ja positiiviset reaktiot sekä postitiiviset esimerkit olivat innostaneet ja rohkaisseet vuorovaikutusta, kehitystä ja kokeellista toimintaa. Erityisesti opiskelijat korostivat tuen merkitystä omalle toiminnalleen.

Henkilökohtainen työ: Useat ADF-yhteisön jäsenten kertomukset liittyivät heidän oman henkilökohtaisen työnsä sisältöön ja laatuun. Yhteisinä piirteinä haastateltavat kuvailivat työtään motivoivaksi, oppimista edistäväksi, runsaasti vapautta sisältäväksi ja jatkuvaksi kehityskohteeksi. Monelle yhteisön jäsenelle ADF:llä toimiminen ja sen luomat mahdollisuudet olivat auttaneet kirkastamaan omaa roolia ja löytämään uusia tavoitteita uralleen.

ADF kokonaisuutena: Yhteisön jäsenten ADF-kokonaisuutta koskevat kokemukset voidaan karkeasti jakaa kolmeen ryhmään: ADF:n fyysiseen ilmentymään ja rakenteisiin liittyviin kokemuksiin sekä ADF:n rooliin ja vaikutuksiin Aalto-yliopiston sisällä. ADF:n tilojen ja fasiliteettien koettiin tyypillisesti tukevan ja mahdollistavan lukuisia aktiviteetteja, vuorovaikutusta, kokeiluita ja opiskelijoiden työskentelyä. ADF:lle leimallisten byrokratian puutteen ja joustavuuden koettiin mahdollistavan kehitystoimintaa, mutta myös aiheuttavan epäselvyyttä ja luovan tarpeen entistä järjestelmällisemmälle tiedon jakamiselle.

Edellä esitetyt tulokset kertovat ADF:llä tapahtuvasta yhteisön jäsenten aktiivisesta kehitystoiminnasta ja vuorovaikutuksesta, vaikkakin näiden mahdollisuuksien entistäkin tehokkaammalle luomiselle ja hyödyntämiselle koetaan edelleen olevan tarvetta. Tulokset antavat ADF-yhteisön jäsenten näkökulmasta viitteitä siitä, mihin Design

Factoryn nykyinen suosio perustuu, sekä tarjoavat tukea ADF:n ja mahdollisten muiden, samankaltaisten toiminta-alustojen jatkokehitykseen. Tulosten perusteella erityisesti seuraavat kolme ominaisuutta leimaavat yhteisön jäsenten kokemusta ADF:stä: pienten tekijöiden huomioiminen kehitystoimintaan kannustamisessa, kriittisen toimijamäärän kokoaminen kehitystoiminnan ylläpitämiseksi, sekä kehitysyhteistyöpotentiaalin tehokas hyödyntäminen.

Table of contents

Introduction

Introduction

In the beginning of 2010, a new university was formed in Finland, merging together the nation's three leading universities of technology, art and design, and economics. The new university, initially coined as the "Innovation University" and eventually named Aalto University, brought together Helsinki University of Technology (HUT), Helsinki School of Economics (HSE), and the University of Art and Design Helsinki (UIAH). The university merger, unprecedented in the country in scale and significance, has been seen as a flagship project in the larger scale development of the higher education and innovation systems in Finland, as well as the national-level holistic approach to innovation. The aim of the merger was to open up new possibilities for strong multi-disciplinary education and research.

This report concerns one of the spearhead projects and first physical manifestations of the Aalto University, a platform for integrative interdisciplinary education, research and industrial collaboration called Aalto University Design Factory (ADF). The report presents the findings from a series of interviews conducted in order to map the experiences and perceptions of the ADF environment held by its community members. Explicating these experiences and how the key principles and ideas behind ADF have manifested themselves benefits the development of the ADF both within Aalto and with international collaboration projects. The main overall goals for this study and report can be summarized as:

- Shedding light on what aspects of ADF, as experienced by the community members, have contributed positively to reaching the goals and fulfilling the intended purposes of the platform

- Identifying issues from the viewpoint of the community that are problematic or could benefit from further attention

- Locating opportunities for development and untapped potential to guide further development efforts

In the following section a brief description of the history and roots of ADF, its present state, and most importantly, the underlying motivations and goals are presented.

History and background of ADF

The Laboratory of Machine Design at the Helsinki University of Technology (HUT) had brought together students from different engineering disciplines within the university and industrial design students from the University of Art and Design Helsinki since 1997 in a product development project course. To better support this interdisciplinary cooperation and the education of product designers, a research and development project was created, called the Future Lab of Product Design (FLPD). Taking place between 2006 and 2008, funded by a number of companies and the Finnish Funding Agency for Technology and Innovation, the project was led by the professor of product development at HUT, Kalevi Ekman.

The aim of the FLPD project was to create an ideal physical and mental working environment for product developers and researchers of product development, and to encourage and enable fruitful interaction between students, researchers, and professional practitioners. The multidisciplinary project group consisted of roughly 10 people, many of whom were master's level students. The members' backgrounds included several different universities, and majors such as mechanical engineering, industrial design, and cognitive sciences. On the physical facilities side, some of the spaces within the facilities of the Laboratory of Machine Design were transformed with the purpose of accommodating a variety of different product development phases. On the cognitive side, the project focus was especially on providing support for the early phases of product development. The overall aim was to develop support for interdisciplinary co-operation, and ultimately to develop a platform for "educating the world's best product designers". In practice, the project served as the first iteration round for the Aalto University Design Factory, helping to pave the way for the larger scale platform.

In the spring of 2008, towards the end of the FLPD project, plans were made to immediately continue on to radically scale up the results both in terms of physical space and educational capacity. Receiving funding as one of the spearhead projects of the upcoming Aalto University, the Design Factory was built on the foundation of ideas, ideals and vision laid by the FLPD project. The official opening of the Design Factory to students, academic staff, and industry partners took place on the 3rd of October 2008.

ADF today - "A Passion-based co-creation platform"

At the present, the Design Factory platform holds a 3200 square-meter facility on the Otaniemi campus (the campus of the former Helsinki University of Technology), the largest of the Aalto University's three campuses. In addition to students and teachers, the platform hosts researchers, entrepreneurs and industry representatives.

The Design Factory aims to provide a physical as well as a mental environment designed for supporting interdisciplinary learning and co-creation. The Design Factory is intended to function as a platform for experimental problem-based learning to promote better learning outcomes as well as enable experiments in industry-university collaboration. It provides a non-hierarchical, constantly developing collaboration environment for students, teachers, researchers and business practitioners across hierarchical, professional, and disciplinary boundaries. The goal is to support world-class development in the contexts of education, research and practical application, as well as to catalyze and spread a culture of student-centric problem-based learning, collaboration across boundaries, and continuous development both within the Aalto University and the wider society.

As experimentation lies at the heart of the ADF platform, its development has been guided by a set of interconnected principles, which could be explicated as; crossing boundaries in co-operation, lowering the threshold for experimentation e.g. by promoting hands-on doing and prototyping, increasing initiative and enthusiasm, and cultivating an open climate. Although the support forms develop continuously in an iterative and expansive manner, the underlying basic philosophy has remained the same since the days of the FLPD-project.

ADF aspires to create and uphold an informal environment and flexible spatial solutions that encourage interaction, taking initiative, and prototyping. The 4000 square-meter facilities of ADF are designed for flexible use and intended to support a range of activities of the different stakeholders from prototyping of varying complexity to hosting events for several hundred people. The facilities are open 24/7 for anybody with an access card that can be acquired by anyone having a justified cause to use the facilities. The building houses both somewhat more formal and informal spaces for team activities, such as brainstorming, team building and meetings, including a fully equipped kitchen that can be freely used by anyone. Design Factory provides tools, facilities, and staff support for various phases and levels of prototyping, from legos and CAD to CNC-milling, painting, electronics, and woodwork. In addition, ADF also offers facilities for large-scale events, such as lectures, seminars, workshops and exhibitions. The versatile meeting

spaces within the Factory also enable dividing a large audience to work in smaller workshops.

During the academic years of 2008- 2009, 2009-2010 and 2010-2011, ADF has hosted roughly 60 courses for 1500 bachelor- and master-degree- level students, 10 research teams, 5 collaboration corporations, as well as several training activities for both academics and practitioners, and numerous start-up companies.

Motivation and Aims of the Research

At the time of this study, the ADF platform has existed for three years, making the time ripe for reflection on how the key principles and ideas behind ADF have manifested in the experiences of its community members. In addition to facilitate the ongoing development of the ADF platform within Aalto, this reflection can benefit expansions efforts two collaboration Factories have been established abroad: Aalto-Tongji Design Factory was opened in the Spring 2010 at Tongji University in Shanghai, China, and Swinburne Factory opened its doors in November 2011 at Swinburne University of Technology in Melbourne, Australia. Defining the essence of Design Factory is a challenging task, due to the immaterial nature of its objectives and the wide range of different types and levels of immersion to the community of its users.

As Design Factory provides few activities on its own but rather acts in collaboration with the wider community of Aalto University and industrial partners, it is the ADF users and community that form the core of and act as carriers and mediators of the climate and embodiments of the underlying principles. In order to understand how the Design Factory is perceived, experienced, utilized, and developed by its community members, a qualitative study was conducted during September and November 2011 by the Design Factory research team (DFRT). The study aimed at providing insights for further development of the platform as a physical, social and mental space. The participants of the study consisted of representatives of all the major community groups of the ADF platform.

This report presents this study, its results and implications offering a view supplementing the already possessed understanding of the ADF platform.

The participants and methods

The participants and methods

As the aim of this report was to capture the experiences and perceptions of the ADF community members, a qualitative approach was adopted. The report is mainly based on the in-depth interviews of 51 ADF community members, supplemented by 177 interviews conducted previously in other research projects and a week of observation of interaction at the ADF Kafis, or the café-office-kitchen of the ADF building.

In short:

- Data was gathered from representatives from all of the different major, regular community groups (staff, researchers, teachers and students from the three original universities, companies).

- Interviews were based on two open-ended questions: how the interviewee ended up at the ADF, and what had happened since.

- The results reflect the different commonly shared aspects of ADF experiences that the community members had encountered, offering insight on what the ADF community members value in the environment, why they have chosen to act on such a platform and what the costs and benefits have been for them.

- The experiences were grouped into categories according to thematic similarity.

- The number of segments in the categories is suggestive of the pervasiveness of such experiences in the ADF community, with categories having larger numbers being more prominent or common place in the experiences. The amount of contributors, on the other hand, is suggestive of the distribution of such experiences within different community groups.

Who was the data gathered from?

In order to gain a comprehensive and representative interview sample, the aim was to include a representative sample of those ADF community members that were physically present on a daily basis, in effect, all ADF staff members, as well as **representatives from all of**

the different major, regular community groups in terms of background and positions. In the end, 51 community members were able to participate in an interview in September 2011. Many had been participated at the ADF in different roles during the time they had acted in the community, for example first as a student and later as a researcher, and thus there was much overlap between the community groups. All in all, the 51 interviews represented

- 23 ADF staff members, 3 AVG staff members and 3 other Aalto developers or operatives

- 14 students, out of which 9 were from engineering or science, 3 from business and 2 from design

- 12 teachers, including 4 professors, 4 teachers, 2 teaching assistants and 2 other teaching personnel members

- 9 researchers from 8 research groups, and

- 4 company representatives from both small and large companies

The interviewees had been involved with the ADF for two years in average. They currently spent an average of three and a half days of the week at the Factory, with 26 daily users, 21 weekly users, and 4 of those who visited less often. Their ages ranged from 22 to 61 years, with three fourths of the interviewees being in their 20s or 30s. The primary academic background was engineering for 26 of the interviewees, business for 10, and art and design for 11. Other academic fields included for example education and cognitive science. 7 had doctoral or licentiate's degrees, 25 master's level degrees, 7 bachelor, and 9 interviewees had or were pursuing degrees in more than one field. Due to the fairly representative interview sample, these distributions can be taken to characterize the active ADF community members in general to some degree.

This interview data was further supplemented by 177 interviews (mainly longitudinal) previously conducted by DFRT, from 24 2010-11 PDP students, 15 ME310 students from two 2010-11 project groups, 23 startup members from five startups located on ADF or AVG premises, and 6 initial AaltoES contributors. These interviews had been conducted with foci other than ADF itself, and only experiences where Design Factory was explicitly referred to were included in the analysis.

Finally, interaction including incidental and one-time ADF users was captured in the Kafis interaction observations. In this data set, all users passing through or spending time at the ADF Kafis during a week in September were observed, and initiations of interaction were recorded.

However, the purpose of this data within the scope of this analysis was only to complement the qualitative interviews, and thus the results of the report are mainly based on regular ADF users.

What do the result categories reflect?

The 51 interviews conducted in September were built around two open-ended questions: how the interviewee ended up at the ADF, and what had happened since. In order to stimulate recall, the interviewees were asked to draw an overall view of activities in what ever form they preferred (different types of timelines were most commonly produced), after which the events were explored in more detail. As the boundary between ADF and non-ADF related actions is far from clear, rather that prompt for specific Design Factory contributions and changes, the aim was to gain a more comprehensive view of the interviewees' activities. The open-ended story-based interview format was selected in order to remove any influence of the possible biases or presumptions of the interviewers on the created answers, as well as to avoid limiting or defining the scope of ADF relevant experiences in advance. The interviews lasted between 34 and 117 minutes, averaging at 66 minutes. Reported experiences, as opposed to general statements or interpretations on others' experiences, were gathered from the interview transcripts and included in the analysis phase. In addition, the data set was supplemented by the explicit ADF references from the 177 previous interviews.

The analysis was based on grouping the interview segments according to thematic similarity. The categories were not mutually exclusive, but rather one experience could belong to several categories. For example, the following experience description was deemed to belong both to the category of *supporting experimentation* and to the category of *flexible and non-bureaucratic arrangements*:

Sillon ku ensimmäisen kerran näit paikkoja esiteltiin meille nii, olinhan mä, äärimmäisen, positiivisesti yllättyny. Just tavallaan, et tääl on mahdollisuus tehdä asioita, sellasella tasolla mitä mun mielest ei missää muualla oikeestaan Aallos oo. Ja sitä et.. sehän tietyssä mielessä rassaa, tuolla Aallon opetuksessa on se että, tiettyjen asioiden suhteen on hirveen, suuret rajotukset, vaikka just ihan.. vähäkään.. no tietotekniikkaosastolla, siel on tietokoneita, mut minkään muun asian tekeminen, ihan vaan tietokoneitten kanssa, pusaaminen on, ihan konkreettisesti vaikeeta, koska.. niitten asioitten, tyypillisesti siihen vaaditaan jotain, rahaa. Tääl oli kuitenki sellanen ympäristö missä sit tavallaan potentiaalisesti ois voinu tehä jotain sellasta vähän niin ku out of the box eikä heti ensimmäisenä tuu vastaan se että, ei oo rahaa. Et tääl on just kuitenki, työkaluympäristöt sit. (teacher)

As the report reflects a qualitative study, the main results are the produced categories. They reflect the different commonly shared aspects of ADF experiences that the community members had encountered. The results do not offer proof of whether these perceptions are accurate in an objective sense, but they reflect what the community members themselves perceive to be true. The categories thus offer insight on what the users of the ADF value in the environment, why they have chosen to act on such a platform and what the costs and benefits have been for them. As such, the results are an important aid in understanding what the Aalto University Design Factory actually is, how can it be developed further, and what elements might be transferable to other contexts.

What do the reported numbers in the categories mean?

Although the main result of the study is the category content, category frequencies are also provided in the report. The number of segments is suggestive of the pervasiveness of such experiences in the ADF community, with categories having larger numbers being more prominent or common place in the experiences. The amount of contributors, on the other hand, is suggestive of the distribution of such experiences within different user groups. However, it is noteworthy that due to the open-ended interviews, these numbers cannot be compared to those provided in typical closed question studies, as all of the occurrences have been spontaneously produced in a limited amount of time by the interviewees rather than being prompted for. For example, the fact that 53 experiences of receiving help from ADF community members were reported by 29 interviewees reflects that help receiving was a significant, remembered experience and thus spontaneously reported by approximately half of the interviewees. It does not mean that the rest of the interviewees had not experienced receiving help from the community members, as would have been the case if the interview had been structured and the interviewees asked whether they had received help. Rather, receiving help from other community members did not come up explicitly in the rest of the interviews. As the interviewees had a maximum of two hours to share their experiences with the interviewer, not all relevant aspects could be covered – the data gathering method prioritized gaining a rich experience descriptions over covering the full range of experiences. Nevertheless, the amounts indicate that the experiences are commonplace and are shared by many community members, rather that being confined to the experiences of a single ADF community member. The higher the amount, the higher the likelihood that other community members have had similar experiences, even though they were not mentioned in their interview (or they were not interviewed at all).

What do the observation amounts mean?

While the interviews provided a rich, in-depth experience base of the ADF community members, the range of experiences and amount of interviews were limited. In addition, the gained data was subjective by definition, reflecting the experiences of the community members rather than any objective state of affairs. Thus the data was complemented by a small observation study.

As the ADF aims to act as a platform for passion-based co-creation, it was decided to focus observations on interaction initiatives. The Kafis, or café/office/kitchen, is often described as the heart of the ADF building that specifically aims at increasing interaction and especially spontaneous encounters. For example, the Kafis is the only place in the building where you can get a cup of coffee, tea, or hot chocolate – a rule created in order to facilitate mingling across different user groups and visitors. Thus the Kafis was the natural site for observing interaction initiatives. In addition, while the interviewees were limited to the regular users of the ADF building, most visitors and occasional users at least pass through the Kafis during their stay at the ADF. As a result, the interaction observations complement the in-depth community member perspectives with a wide ranged view of a very narrow set of behaviors.

Although observation allows gaining more objective information, a very narrow set of behaviors can be observed at once. For one week in September, typically between 9 AM and 5 PM (although earlier and later time periods were included in some days), the following interaction aspects were recorded;

when people entered the Kafis,

- did it result in any communication

- did the entering person pass by, stop to get coffee or food, or stay at the Kafis

- if the entrance resulted in a greeting, was it from the initiative of the person entering, or from someone already at the Kafis

when people initiated conversations,

- did they start with a comment or question

- was the remark addressed to someone in specific, or the general crowd present at the Kafis at that moment

- did the initiating comment or question seem to be related to work or studies, or general pleasantries or free time

- was the initiating person someone who was passing by the Kafis, hanging out there already, or seemingly looking for someone in specific

In addition, the time of occurrence and parties involved (when recognized by the observer) were noted. As a result, the results portray how commonly interaction occurs at the Kafis, and how it tends to be initiated. Standing alone these results do not offer any comprehensive account of the ADF, and they are based on a fairly limited amount of time and encounters, but the observations supplement data gained from the community interviewees on the extent and type of interaction taking place at the ADF, providing further insight into the community. The observation aimed at collecting data of the routine conditions of spontaneous interaction at Kafis, and therefore specific events, such as the Tuesday morning breakfast were excluded from the observations. Further motivation for the exclusion was, the impossibility to make valid observational accounts of these events due to the sheer number of interactions taking place simultaneously.

Results of the study

Results of the study

In the following section the results of the study are presented in four main classes (including various categories illustrative of the ADF experiences):

- Typical characteristics of interaction within ADF community

- Typical characteristics of action at ADF

- Typical characteristics of support received from the ADF community

- Characteristic features of the work of ADF community members

- Typical characteristics of the ADF platform

These classes and categories are drawn from the interview data of the ADF community members and are based on narratives on critical incidents after entering ADF community. The qualitative findings are supplemented with observation data and illustrative stories of some developments conducted at the Aalto University Design Factory.

The presentation of each class begins with a short overall introduction of the theme and some key findings from the analysis. After introducing the class, the categories, along with their content and the number of contributors, are presented in a table. After that, the findings of each category are presented alongside with quotations from the transcriptions illustrative of the key points. Providing a background for the results, typical characteristics of the ADF community members and their development experiences drawn from the interview data are presented in the following section.

Features of the ADF community

The results presented in this report are based on the experiences of the ADF community members, namely Aalto teachers, students, researchers, and company representatives. However, before diving into these experiences, some of the typical features of the ADF community members are described below in order to form an overall view of the community and a context for the results.

Teachers

ADF teachers value the Design Factory foremost as a facility enabling more possibilities for interactive and motivating teaching than other Aalto buildings (containing mainly large lecture halls and auditorium-like spaces with fixed furniture). In contrast to the dominant teaching styles at their own departments, the ADF teachers have implemented hands-on group work incorporating real-life problems in their teaching. As the teachers are usually mainly interacting with their own students and are in contact with the staff members with practical issues, further integrating them to the wider ADF community can be a challenge.

Students

The students enter the ADF community through participating in the multidisciplinary courses organized at the Design Factory. ADF provides a common home base for the project activities and relaxed working facilities for Aalto students. The students usually emphasize the hands-on approach on the ADF courses and the possibility of different levels of prototyping and model building, and reported feeling highly motivated to giving their best and learning as much as they can. The students have a very positive view of ADF, and initial exposure often leads to a desire to participate in further ADF courses.

Researchers

The researchers of the community typically conduct applied research, and value the "hub" nature of the ADF. They have been attracted to the community due to the vibrant multitude of activities and actors, seeing possibilities for collaboration. The main risk for researchers, however, seems to be the reduction of the ADF to a place for individual work in the absence of finding ways by which to integrate into the community, and challenges in concentrating and receiving support for individual work.

Company representatives

Also the companies and their representatives have typically been enticed by the hub of the ADF, seeking a more inspiring environment and potential benefits from collaboration. Many appreciate especially the prototyping facilities and lab personnel, and have utilized student assignments, via courses and projects, in their development. In other terms, the Aalto Venture Garage was often perceived as a more natural place for startup companies. Both had offered benefits in terms of gaining visibility, but untapped potential in collaboration remained.

Development at the ADF

ADF aims at providing a continuously developing experimentation platform for co-creation, passion-based learning and development. Thus when describing their experiences after entering ADF, the community members told the interviewers numerous development stories. As opposed to the daily-basis creative work of the community members (such as projects aiming to create new products or knowledge), developments are here defined as conscious efforts to have an improving effect by transforming the state of the things in a concrete way, clearly separate incidents from the daily "routine" creation work engaged in by the community members. The developments can be related to improving the ADF through individual development in one's own work, developing the ADF practices and ways of working, and developing the ADF spaces and facilities.

The reported developments (see Table 1) were most commonly related to the community members' own activities, such as developing the work of their companies, developing innovative products, experimenting with cross-boundary research projects, building and widening their professional networks, etc. Both entrepreneurs and researchers reported turning their knowledge base into various development projects benefiting their associates, but also, for example, senior citizens, design field, and women willing to learn writing code. The entrepreneurs also described developments advancing their own business ideas and products as well as ways of collaborating with the different ADF stakeholders, such as PDP course students. Some members of ADF and Aalto staff described developments benefiting the wider Aalto community, such as establishing an Aalto restaurant and developing ways of collaborating with other Aalto actors.

As a part of developing one's own work, the interviewees also described numerous pedagogical developments. They felt that ADF staff, spaces, facilities, and ways of working encouraged them to teach in a more student-oriented, problem-based, hands-on way. They were eager to experiment with teamwork and interdisciplinary teaching incorporating real-life problems. The majority of the developments had to do with interdisciplinary courses and cooperative teaching arrangements. The courses situated at ADF established development collaboration with other ADF courses, ATDF educational platform, ADF staff members, and industrial and NGO partners. Some teachers described radically developing their teaching philosophy and practices taking advantage of the possibilities offered by ADF. For example, some teachers implemented new hands-on methods, student projects,

video presentations and PD6, into their courses. Many teaching developments were also related to new ways of giving and receiving feedback from the students. In addition to teachers, also course assistants reported conducting some small-scale teaching developments, such as developing the enrolment system or the webpage of the course.

Mainly the staff members reported developing ADF by renovating and further developing the spaces and facilities as well as developing the ADF activities and ways of working. Some interviewees were motivated to develop the spaces in order to make them serve the Aalto students more efficiently. While they were excited about working in a constantly developing, colorful and comfy environment, they were often concerned with the sometimes messy and unorganized facilities. Some development efforts were targeted at simplifying the spaces in order to make them more usable for all user groups. In some incidents staff members felt like they couldn't affect the seemingly random space renovations, whereas in others they reported actively developing their own working environment by e.g. reorganizing the lockers, and cleaning up and reorganizing the working spaces, The majority of the reported developments were targeted at improving the ADF spaces and facilities taking place in the cafeteria, lobby, and Puuhamaa (an open space for student project work). Some development stories were also related to developing ATDF both as a physical and mental space, and the Venture Garage renovation.

In comparison to the spatial developments, stories of developing the ADF activities and ways of working were quite infrequent in the data. The reported ADF activity developments, such as composing a Service Menu, and providing introductory tours and teaching materials for the courses organized at the ADF, were targeted at benefiting the work of the students and other ADF community groups. The reported developments also had to do with improving the means and channels of interaction, such as establishing a weekly newsletter. Some interviewees also reported initiating parties and other informal, food-related activities, such as Tuesday breakfasts, aiming to increase the ADF communality.

Table 1. Reported developments conducted by the ADF community members

Category	Content	Number of developments *	Number of contributors **
Pedagogical development at the ADF	ADF teachers are encouraged to develop their teaching methods and approaches towards more problem-based, student-oriented, collaborative teaching	27	15
Developing the ADF spaces and facilities	As a part of being a continuously developing platform, the ADF spaces and facilities are continuously under renovation. Recently the focus has been on simplifying the spaces and keeping them tidy and organized for the students.	19	12
Developing ADF and its activities	ADF community members develop Factory from the viewpoints of communality, continuous development of the ADF ways of working, student-centricity and serving the outside users	15	13
Developing the research, development and entrepreneu-rial activities of ADF community members	ADF provides physical and mental support, opportunities for collaboration and inspiration for developing the research, development and entrepreneurial activities of ADF community members.	47	22
Total		**108 *****	**51 ******

*The number of developments in the categories indicates the number of descriptions of different development undertakings within each gategory

**The number of contributors indicates the number of different interviewees describing developments within the specific category

***The total number of developments indicates the number of all the different developments reported in the interviews in total.

****The total number of contributors is suggestive of the number of different contributors within in all categories in total (overlap between categories eliminated).

Soita Mummolle – Conceptual design project improving the life of seniors

Soita Mummolle was initially born as a conceptual design project within MIND Research Group, which scope was to "create concepts for products and services that improve the life of seniors, granting them more independency and a longer, healthier life in their own homes". This sentence was the only brief given to the student team: all the goals had to be defined by the team itself by investigating what could actually create value for the seniors. The method chosen was a reiteration of prototyping cycles, in which ideas were immediately roughly tested and successively refined by observing results and repeating the process. From June to August 2009 several hundreds of ideas were generated, and more than twenty of them were quickly prototyped.

The project had three main spin-offs: the first, *Kotikori*, was a concept for the home delivery of healthy snacks, with a payment method similar to a minibar. It attracted the interest of a company and it was pilot tested for one month with senior users. The second spin-off, *Language Café* , was awarded at a pitching competition and tested in multiple settings: the idea was to have a welcoming, cozy place for conversation where seniors could be the language trainers for younger immigrants, because they have plenty of time, patience and desire to talk to others. Last but not least was the grassroots social campaign *Soita Mummolle*, that successfully shook Helsinki and the Finnish media in Summer 2010.

The *Soita Mummolle* concept was born as a reaction. After spending time with seniors in assisted living building, the team realized that seniors don't need more products or more people paid to take care of them: what they wanted the most was to be more in contact with their relatives and have a more central role in their families. It is the overall mentality of the society that is the real field of intervention: design should aim at changing the society's perceptions about what should be done for the third age.

A guerrilla campaign was initiated by MINDer Stefania Passera, who organized street actions in which passers-by were asked to donate their support picture to the campaign blog: a little bit like Hel Looks, but holding the *Soita Mummolle* sign. Also a blog and a Facebook group were started, and especially the latter became incredibly popular, gathering something like 3000 fans in 4 months. The grand final was the self-proclaimed *Soita Mummolle Päivä* on 11th August, on which a flash mob was organized in Narinkkatori: people could join to call publicly and for free their senior relatives, giving so a visible sign of their affection. Around a hundred people participated in this flash mob.

The goal of the campaign was to shake the public opinion and get media visibility around the issue of seniors' loneliness in Finland, and to achieve it on a shoestring budget. The whole campaign was developed through an iterative and explorative try-and-fail attitude, that leads to progressively get right and "viral" the mix of guerrilla marketing, social media, PR and crowd participation.

Stefania Passera

Action Researcher, Graphic Designer/Concept Visualizer
Mind Research Group

Typical characteristics of interaction within ADF community

The majority of the ADF experiences described, especially amongst ADF staff members, included elements of interaction. The community itself was usually described as a close family or home, where interaction is based on a shared mentality of doing ("tekemisen meininki") and building long-lasting relationships. The diversity of the community members was seen as an important element in learning through widening one's perspective and knowledge base. It was also seen crucial in connecting similar interests and personalities for further collaboration. In addition to the disciplinary and cultural diversities, the physical closeness of people was experienced as enhancing collaboration; it was easier to contact other people when they were physically available. Even though the need, potential and benefits of collaboration were recognized amongst ADF community members, there were several challenges taking full advantage of it. Getting to know the busy staff members and integrating one's self to the close community and receiving feedback from one's work were perceived as the most common interaction challenges.

Key points of the ADF community members' interaction:

- Having a tight but open community that promotes a welcoming atmosphere, shares a mentality of doing, and arranges informal activities together is critical for enjoying one's work

- Physical closeness to other ADF community members enhances getting to know each other and thus makes reciprocal collaboration easier

- Merely having a diverse group of people at a same physical location isn't enough, but rather ways of benefiting from the close community, diversity of the ADF community members, as well as the potential for collaboration are required

Table 2. Characteristic features of interaction within ADF community

Category	Content	No. of segments *	Teachers	Researchers	ADF and other AU staff	Students	Company representatives
			No. of contributors in the groups of **				
Potential for collaboration	ADF provides potential for ad hoc collaboration by bringing people with diverse backgrounds physically close to each other	105	16	12	25	8	11
Tight community as a home base	ADF community is experienced as providing a home for its members, challenges are faced in finding an entrance to the closed community and keeping up the team spirit	95	11	11	25	10	3
Open interaction	ADF community members feel free to contact and approach other members of ADF, the high level of interaction benefits other activities, but more feedback is required	53	4	3	22	9	1
Diversity of the ADF community members	The communal diversity, including interdisciplinarity and internationality, benefits ADF community members through a widened perspective and knowledge base	48	4	5	14	2	0
Importance of integrating with ADF community	Getting to know the staff members, working actively and participating common activities makes it easier to function and integrate further into the wider ADF community	41	7	8	13	1	3
Importance of the atmosphere	The mentality of doing and the warm, welcoming and open atmosphere should be kept up at ADF	35	4	8	22	3	8
Total		**377***	**9******	**8**	**24**	**8**	**13**

*The number of segments in the categories indicates how many times experiences related to the category in question were described in the interviews in total with multiple mentions of a same event within the same interview eliminated.

**The number of contributors indicates how many different interviewees in each group described experiences in each category.

***The total number of segments indicates the number of the experiences in all categories in total.

****The total number of contributors indicates the number of different contributors within each community group in all categories in total (overlap between categories eliminated).

Potential for collaboration

The interviewed ADF community members feel that ADF provides the potential for ad hoc, reciprocal, professional collaboration, such as interdisciplinary teaching and establishing a company together. Most descriptions implied that collaboration is easy at ADF (n= 19). Being physically available and close to each other enhanced information exchange and lowered the threshold for collaboration. The benefits of collaboration were identified as learning, team formation, and better results. However, the perceived lack of ways and support made taking full advantage of the collaboration potential challenging.

I think that once I had, if it were possible in some other way... Well mostly if by coincidence this kind of number of these interested parties were for any other reason so close to me, I don't think that we could reach the corresponding situation, because now there are other project parties even in the same open office, I don't think that kind of a situation comes along very easily. Of course it could be to some extent, say, some kind of a technologycenter-type, incubator-type place (...), But really this is totally a unique place for doing this kind of collaboration, there is this atmosphere of oppenness, certainly much better than if we think of some office towers in where small businesses are renters, they all have their own door and the doors are locked, so of course in that kind of environment any collaboration among the companies doesn't necessarily occur. (researcher)

Ja nyt Karin kanssa me sitten harjoteltiin meidän yhteistyötä ja Kari teki siitä proton, et tää on, mä näen, et tä on meidän kannalta, mun ja Karin, ja elektroniikka, ja muiden porukoiden kanssa, että tää on meidän ammattitaidon ylläpitämistä, ja myöskin yhteistyöharjottelua, et mitä me täällä voidaan tehä. Opiskelijoille se näkyy sitten, et me osataan tehdä asioita ja talon ulkopuolisille se näkyy, esimerkkejä mitä me voidaan täällä tehdä. (ADF staff member)

Tight community as a home base

Working in a congenial community, being able to build long-lasting relationships, and having a strong team spirit due to arranging informal gatherings and food-related activities were perceived as typical characteristic of ADF. The small size and low turnover rate made the community very tight, and the ability to get to know the staff members and thus enter to the community was seen critical.

For example these kind of a small ceremonies, or Eetu's congratulations, everyone is invited and asked to join. So we don't have those cliques, that okey, you are a student, they are PDP students, they are researchers,

although everyone has their own [groups they belong to]..But for me it has been especially important to be involved since I have only our small group around me working, these [few colleagues]. I feel that I belong here. (ADF staff member)

For newcomers trying to integrate into the ADF, the community could however appear to be closed. On the other hand, especially the staff members felt like the communality was threatened because people are becoming increasingly busy, professional and separated (partly due to increased size of the community) from each other.

me ollaan nyt kahtena vuonna vedetty se kurssi täällä.. tai no konkreettisesti me saatiin tilat viime vuonna, fyysisesti me oltiin tuolla, backstagella ja.. mut mä nyt en osaa silleen niin hirveesti, erotella näitä. - - mä oon kuitenki tavallaan kokenu, et tällasena.. miten mä sanosin? ..me ei oo, oltu varsinaisesti osa tätä, establishmenttiä vaan enemmän, tavallaan "vuokralaisena", ni on kyl ollu hirveen vaikee sit kuitenki tavallaan, löytää tapoja millä sitä, asiaa täällä ympärillä ois pystyny laajemmin hyödyntään. (teacher)

Open interaction

The ADF community interviewees, especially the staff members, felt that it was easy to approach and interact with other people (n=25). Physical presence at the shared spaces lowered the threshold for asking questions and inviting other people to join the activities, such as user tests. Being able to work on different ideas together with other people enhanced development work especially amongst staff members and students. As a part of the interaction, the community members highly valued feedback and collegial conversations, and were hoping to get more feedback especially from their supervisors. Peer support was seen important amongst the students as well.

Who ever happened to be around, there were lot of some friends, people we knew. We said to them that hey, come and be part of our experiment tomorrow. Sometimes we just asked some one in passing that hey, come and take part and you will get a coffee if you do this small experiment and so on. We were able to get all kinds of people, there were researchers, teachers and students. (student)

Esimerkiks [tämä henkilö] ei oo mikään valtava palautteen antaja tai muutenkaa sellanen, et se sopivan etäisyyden kautta aina osallistuu kaikkeen. Jokasest, mulla nyt ei henkilöstä ei oo yhtään sen enempää haitannu, päinvastoin, mulla meni kaikki tosi hienosti, en mä osaa silleen

Diversity of the ADF community members

One of the defining characteristics of the ADF community was its diversity. Especially the staff members reported benefiting from the diverse community (n=19), resulting in a widened perspective and knowledge base, broad-minded atmosphere, and internationality. Nevertheless, the ADF members expressed the need to exploit the ADF diversity further. Interdisciplinarity was seen both as an asset due to its collaborative potential and as a challenge due to others' prejudges towards other disciplines. The importance of learning from cultural differences and overcoming the challenges of internationalization were highlighted especially in the experiences of Aalto-Tongji Design Factory.

Niin siihen mä en voi ehkä verrata mut et vähän ehkä voi sanoo, et pikkasen on ollu joskus jopa turhautunu siitä, mut se on ollu mun omaa vikaa, koska mä en oo tehny mun, tai siis totta kai mä haluaisin myöski oman alan töitä tehdä, ja siis tää on ollu sillei sivunnu sitä. Ja tavallaan tää on ehkä antanu laajemman näkökulman siihen mikä on tosi hyvä, mut et tietenki mä oon kaivannu sitte taas sitä ihan puhdasta suunnittelutyötä, ja sitä et mä pääsen työstämään jotain materiaaleja ja sellasia, mitä täällä ei sitte taas.. Eikä siis, ei se kuulu niin että sen pitää tukee mun tällästä, mut et joka tapauksessa ni, mut et ehkä antanu laaja-alasemman näkemyksen et minkälaisii kaikkii eri vaiheita on ja muutenki et missä sitä pyöritään. (ADF staff member)

aina ku kehitti jotain, niin se et miten paljon saa tavallaan, bonuksena näkemyksiä ja palautetta niilt ihmisilt mitä tääl on ympärillä, et koko sen PDP:n ajan niin mä tein sitä et mä kävin ihan jutteleen ihmisille ja, kyselee et mitä ne porukat on ku päivittäin vaihtuu jengit... Niin sielt tuli aina mielenkiintosii mielipiteitä, ja sit joskus yllättäen tämmösii et hei että, me ei tehä mitään semmosta mutta, oot sä kuullu tost toisest firmasta tai, jostain tämmösest porukasta ja, kaikennäkösist järjestöist ja jutuista ni sai ihan hirveesti vinkkejä sitä kautta ku oli sitä, kosketuspintaa sit siihen väliaikasempaan yleisöön mitä tääl menee niin, se oli semmonen aika arvokas palautesysteemi. (student)

It (Opefoorumi) has given experiences, I think it is great when you have different teachers from different departments. So you get to see a bit of their ways of working, how they do things. So you can spread the knowledge you have and also receive it from others. I think it has provided nice things. (teacher)

Importance of integrating with ADF community

In addition to enhanced collaboration, having a common physical space and spatial arrangements that promote interaction (such as having shared rooms next to other community members instead of working in separated rooms), were perceived to enhance getting to know other members of the ADF community (n=11). Being able to use the ADF actively in one's own work and participate in activities organized by others were seen as critical for entering the community, as well as for getting new information, potential contacts and feedback. Many ADF community members also reported having a person connecting them with other community members and needs (n=15). Especially the teachers emphasized the active role of staff members in introducing new users to the wider community. Familiarizing with the staff members made it easier to utilize ADF spaces and facilities for one's own purposes.

Nyt taas huomaa selvästi et on ollu hirmunen hyöty ku me on nyt joka ikinen kurssi käyty erikseen tapaamassa ja pidetty niillee tämmönen ikään ku tutustuttamispuolituntinen tai muuten vähän näytetty taloo ja kerrottu mikä on talon tapana ja muuta, ni siit tuntuu olevan tosi iso. Nyt viime vuoden IDBM-opiskelijat teki ensimmäisen kerran ruokaa huhtikuussa, nyt ne teki viikonloppuna ruokaa et se on, niin me varmaan just kannustettiin olemaan aktiivisii kun (ME30) [20:38] lähti, mikä oli taas vahvasti semmonen, ne sano itteensä vähän niin ku kalusteiks, et ne oli aina täällä. Ja aktiivinen sosiaalinen porukka vielä ni se oli semmonen mikä, ja oli aina jotain näytettävää ja muuta, ni sillä me yritettiin aktivoida nää muut kurssit että saatas ikään ku sitä tyhjiöö täytettyä. (ADF staff member)

Yks esimerkki se on, et mä olin miettiny hirveen pitkään, että mä oisin halunnu tulla tonne ylös, sinne avokonttoriin tekemään töitä sillon tällön, mut mä tykkäsin et kun, siis minäkin vaikka olen, en kovin arka ihminen, niin koko ajan ajatteli sitä et no, kun en mä nyt oikein tiedä että ketä siel on ja voiko sinne mennä ja miten mä nyt sinne sit menen. Niin nyt se oli hirveen helppoo ja luontevaa että, ja mä tiesin et siel on tilaa ja mä voin mennä joko semmoseen hot spot -pöytään tai nyt kun Päivi lähti, niin mä siirryin sinne, et se oli yks sellanen. (teacher)

Importance of the atmosphere

The ADF atmosphere was described as one of the key elements of the ADF. When describing the atmosphere, especially the staff members emphasized mentality of doing (n=18). It was characterized as grit, taking matters into one's own hands, or as a unprejudiced attitude. In

addition, the atmosphere was also experienced as encouraging, welcoming, warm and daring. The ADF staff members and their attitudes were perceived to have an important role in keeping up the can-do spirit typical of ADF.

Siis täällähän oli ihan mieletön draivi, et se oli varmaan semmonen yleistunnelma ja se nyt oli mullekin, et se oli vaan tosi jotenki, ihmeellistä, et jotain tapahtuu näin nopeesti, näin konkreettisesti. Ja sit, se oli vaan, semmonen innostus et aika, en mä siihen kauheen kriittisesti suhtautunu, tai et siin vaan oli mukana, siinä semmosessa, siinä, voisko sanoo draiviks, että semmonen… (researcher)

On the other hand, some ADF community members felt that sustaining the positive atmosphere was becoming more challenging, as they felt the community as a whole had become more closed, with people being more busy and concerned with their own interest than before.

In the early days of ADF, when the amount of people was of course smaller, but then we had more time for one another. And it brought along an even better atmosphere and team spirit. (ADF staff member)

Typical characteristics of action at ADF

Some shared characteristics could be found in the actions pursued by all of the ADF community groups. These characteristics were perceived to shape the ADF as a whole, rather than just the work of each individual. The community members were active in creating the form of actions, self-initiating development at a fast pace through informal channels. Informal activities in general were perceived as a key characteristic of the ADF community, which also promoted open sharing amongst the community members. Participation and development were often initiated thanks to information and requests originating from the ADF community members' personal contacts.

Key points in the type of action pursued by the ADF community members

- Non-hierarchical and informal interaction has made people easier to approach, and a fast pace of interaction and implementation are perceived as important success factors

- Personal networks have been highly utilized in expanding participation and development, and open sharing within the community has enhanced development efforts

- The community members have self-initiated development both in their own work, and have actively suggested development collaboration with others

Table 3. Typical characteristics of action pursued at the ADF

Category	Content	No. of segments	No. of contributors in the groups of				
			Teachers	Researchers	ADF and other AU staff	Students	Company representatives
Informal	Non-hierarchical and equal interaction, utilizing informal channels, blending work and leisure time	117	7	6	14	9	4
Network-based	Participating in activities through contacts' information and requests, expanding one's work through one's network, promoting ADF to one's own network	58	5	6	10	9	2
Self-initiated	Self-initiated development for the common good, suggesting new activities, initiating interaction, taking initiative in one's own work	52	5	2	13	3	3
Open sharing	Engagement in open sharing of ideas, knowledge, and expertise, supportive atmosphere and structures	32	3	6	4	3	2
Fast-paced	Fast-paced interaction and participation, short idea-action cycles, benefits from speedy development	31	3	1	7	5	2
Total		**290**	**23**	**21**	**47**	**26**	**13**

Informal actions and channels

Many community members reported informal activity as one of the key features of ADF. The informal nature of actions was perceived as highly positive, making working more relaxed and enjoyable. Interaction and cooperation was characterized as non-hierarchical and informal, making people more easily approachable. Furthermore, ADF community members reported that when proposing ideas and thoughts, unofficial and informal channels were successfully utilized.

We decided to start this thing, now that we're joining, so that we have reserved the Design Factory sauna [laughing] and we will have our weekly meeting there. (company representative)

Ja sithän aina kun Otaniemi Marketingille tuli ulkomailta vieraita, joko yritysten tai median tai tämmösten katto-organisaatioiden edustajia, niin se oli sit se the juttu, että Suomessa ollaan nyt käynnistämässä Aalto-

yliopistoa ja täällä on jo se, sen voi aistia mistä tulee olemaan kysymys. Ja sit ruvettiin roudaamaan aina näit vieraita tänne. Siinäkin se, että jos sitä talon henkeä, et mitenkä se tuli niissä tilanteissa esiin, niin ensinnäkään koskaan ei sanottu että "ei, tänne ei voi tulla", vaan et "okei, tervetuloa" ja sitten joku näyttää. Sit aina vaan tempastiin joku, et "voit sä, ehdit sä tulla". Et kyl semmonen, miten sen nyt sanois, ettei kaikki mee silleen tiukasti prosessien mukaan, vaan et voi nappaa et "hei ehdit sä, voit sä, joo voin". Tämmönen mun mielestä siinä kiinnitti huomiota, kun toin näitä vieraita tänne. (Aalto staff member)

And the hierarchy, that not everything has to be so that, like for example here anyone can go to talk to Eetu and he is the boss of this entire place after all. I could never imagine that one could in the Aalto School of Economics just go talk to the dean. (Aalto staff member)

The community members also described spending free time at the ADF, taking part in social events organized by different courses or groups of people. These informal events were perceived to have a significant contribution in team building and creating team spirit.

Yhteishenki ja nää tämmöset vapaa-ajan asiat mitkä liittyy tähän koko paikalla olemiseen ja muuhun niin, se on ollu kans tosi positiivista ja silläki on varmasti oma iso osuutensa sen kans et miten jengi tääl toimii. Et ei pelkästään se että opiskellaan, tutkitaan tai tehdään jotain työtä yhessä, mut se et sit, kaikki jossain käy vähän juhlimassaki välillä tai että, voidaan pitää, grillata illalla että se on mahdollista ja tommonen ni mä luulen et sil on iso vaikutus et se on, ehkä sit isommassa skaalassa just sitä team buildingia mitä PDP:ssäki harrastettiin että, jos työskennellään yhessä ni se on hyvä viettää vähän vapaa-aikaaki ni oppii tuntemaan tavallaan, ihmisiä ja sit se nimenomaan just helpottaa sitä lähestyttävyyttä ja kaikkee muuta et pystyy sit menee juttelee suoraan et.. (student)

Sillon ku tää meni kiinni tää paikka, siis kesällä tää oli jotain kaks viikkoo kiinni. Nii täällä oli niin siistii ku tääl oli vaan kolme neljä tyyppii ja tää paikkaki oli aika siistis kunnossa, ja sit itse asias mun tyttöystävä sattu oleen sillon ulkomailla, me oltiin koko päivän täällä, me tehtiin just sellasii juttuja, siis me tehtiin tosi paljon duunii, siis tehtiin oikeestaan enemmän duunii ku milloinkaan, mut oli niin rauhallista. Se oli jotenki tosi jees, plus et oli ollu jo puol kesää tääl, niin sai käyttää ja kaikkee, et tavallaan semmonen fiilis, et hitsi tiätsä, mä voin tehä tänäänki ihan mitä vaan. Jos mulla riittäis aika, niin mä voisin vaik tehä auton. Et se oli semmonen ihan sikamakee juttu. Se oli tosi jees, jotenki niin ku täähän on ihan törkeen iso lofti, periaattees tää paikka. Me tehtiin lounaaks just stagelt soitettiin musaa helvetin kovalla ja oltiin ulkona grillaamas tossa ja paisto aurinko ja se oli tosi jees, kyl mä diggasin (ADF staff member)

The interviewed ADF community members also reported that work and leisure time was easily blended (n=27). Several interviewees reported being able to carry out their hobbies and own projects at the ADF premises, due to both the facilities and the tolerant atmosphere. The facilities were described as playful, relaxed and inspiring, and they were noted to support informal and relaxed behavior.

Mä tein vähän veneen osiin täällä näin. Ja lähinnä sisustan osii ja kaikennäköst askarteluu. Pääsin sit sinne tekemään sitä venettä ja se ehkä sit kuvastaa toi vene, kun se on mun semmonen harrastus, niin sit sillee, et ku mä oon aika paljon tehny en pelkästään veneeseen liittyvii vaan kaikkii omii pikkuaskareita ja niitä näitä täällä. Ja sit mä piirsin tonne tommosen lampunki, seki vähän kuuluu, siin lukee [mun kaverin yks yritys[, mä tein niille pikkujoululahjaks tommosen pikkulampun täällä näin. Sitte niin se menee myös vähän niihin omiin projekteihin. Tääl tulee niin ku kaikennäköst tämmöstä, että sekottuu vähän silleen, mää teen omii tavallaan harrastusjuttuu, osittain sit vähän puoliks työjuttui ja sit vähän silleen, siis vähän vakavempiiki työjuttui. (student)

Ehkä se yks semmonen mikä teollisuuteen verrattuna huomaa niin asenteet on silleen, tääl on, paljon avoimempi meininki siis sillai kaikkeen uuteen. Et, voi koittaa, siis ihan nyt vaikka sanotaan näit et meil on joku, musasysteemi, et meil on Spotify ja äänikamppeet tuolla pajassa ja kaikki tämmöset niin, ei se välttämättä, mee ihan joka paikassa läpi siis silleen et sit siel on jotain vanhempia jarruja jotka on kuitenkin et "ei tääl mitään rokkia kuunnella". Ja se et siitä saa, pajastakin niin, ollaan tehty hirveen paljon oman näkönen. Et sehän nyt ei missään nimessä muistuta mitään normaalia konepajaa mis on koneet silleen, siistissä rivissä tälleen. Siistiähän siel on kyllä ainakin mitä jengi sanoo kun ne tulee käymään et täällähän on ihan siistin näköstä. Mut se et se on semmonen, oman näkönen. (ADF staff member)

In here it is okay, if I am here for 16 hours, then maybe I work for, say, 8 hours and the other 8 hours is something non-work related. But it doesn't matter since it is leisure time anyway so that you can work for one hour, have one-hour leisure time and so on. That is why it doesn't bother me to spend that 16 hours here. (ADF staff member)

Networks initiate and enhance action at ADF

People have come to contact with the ADF activities largely as a result of their personal networks. The interviewees described both joining activities themselves as a result of their networks (n=24) and brining and introducing their own contacts to the ADF. The interviewees had often participated in or joined ADF actions after hearing tips, receiving

recommendations or being directly asked by their acquaintances. For example, one might have heard of an open position through a contact or a former contact might have approach with a suggestion to join a new project. Especially students described applying for activities after hearing recommendations from former students with experience from the activity, such as the PDP course, IDBM program or Murjottelu traineeship.

Ja, sitten se miten mä päädyin tänne syksyllä, niin oli oikeestaan et mä, tulin tänne mun kaveri oli PDP:llä, ja sitten mä tulin hengailemaan, sen kanssa ja sit se oli aina et "ota nyt PDP", että.. Et ku on kuitenki jotain kivaa tekemistä sit syksyllä ja sit mä olin silleen et okei ja sit mä otin PDP:n ja sitä kautta sitten hengailin täällä. (student)

Mä opiskelin Tukholmassa, ja mun luokalla oli suomalainen poika, ja se oli joskus ollut murjottelemassa. Ja sit se oli silleen, et "hei, hae nyt sinne". Sit mä osanoin, et "enhän mä oo edes opiskellu näis Aallon kouluissa", ja sit se oli: "ei ei, ei tarvii olla, hae nyt sinne!". Et se jotenkin tuli sitä kautta, et mun kaveri oli tosi paljon sitä mieltä, et mun pitää hakee. Ja sit mä kävin ne kaikki firmat läpi ja hain murjottelee. (student)

And the other thing was that, those guys who were, actually there were like two or three other people who were also telling me about PDP, and they said yeah, there is this professor and he's always there, right [laughing], he's there even in evenings, like, what? And, they said like yeah, he was really, really helping, and if you ask him.. I was late. If you ask him he will definitely find a slot for your or something. (student)

The ADF community members also described actively brining their own contacts to the ADF, such as inviting contacts to visit the facilities or activities like the PDP Gala.

I have brought some people here, some acquaintances, and also we have this kind of a women's network with my ex-colleagues and we have been visiting here with them and having a look around. One colleague came with her children, and the teenage boy asked right away how can he get in here (laughing). (researcher)

In general, networks and human contacts were highly valued by the ADF community members. Many described examples where project topics and sponsors had emerged with the help of acquaintances, and former collaboration often sparked new joint efforts down the road.

Self-initiated development and participation

Proactivity seemed to be a typical feature in ADF community activities. Many of the described self-initiated activities were aimed for the common good (n=18), with community members bearing developing activities, learning materials and spatial solutions, as well as gathering feedback. For example, one interviewee described the 2010-11 PDP course project managers developing and organizing an additional feedback event for the course:

> *Mehän kehitettiin siel, managerien, talvileirillä, niin me mietittiin että miten kurssia vois kehittää, siellä ku me istuttiin saunassa, et miten kurssia vois kehittää. Niin.. ku aikasemmin oltiin käyty läpi just niitä yhteisiä ongelmia ja kokemuksia, niin siitä tavallaan mulle tuli mieleen se että kun, tossa oppii ei pelkästään omista ongelmista vaan myös muiden ongelmista, niin ehkä meiän pitäis tehä semmonen tilaisuus missä nimenomaan tehdään just tota. Ja siitä synty sit se kurssin jälkeinen palautetilaisuus, tai tämmönen feedbackjuttu, mikä oli gaalan jälkeen, siin vaihees ku kaikki on arvosteltu ja tehty jo, mikä oli vapaaehtonen tilaisuus ja se lähti se idea sieltä. Ja siinä se ajatus oli tavallaan se että, kerätään sinne kaikki porukat, ja siellä saa tulla avautumaan ja valittaan, tai kertoo hyvistä ja huonoista asioista, mistä vaan. Niin jotta sais mahdollisimman paljon sitä muiden kokemusta tietoon. (student)*

The ADF community members were also proactive in suggesting new activities, for example suggesting new courses, new course examination formats, workshops and projects. Collaboration was also initiated and strengthened by the initiative of the community members, and proactivity was demonstrated within one's own work. On the other hand, a high degree of initiative was also perceived as necessary for successfully working at the ADF environment. Rather than providing ready-made solutions, the community was described as offering ideas, opportunities and stimuli.

Finally, although a high degree of proactivity was described by the community members and many took responsibility of the common good, collective responsibility and ownership of the shared equipment and facilities was perceived as challenging at times. The rate of successfully returning equipment to their right places and cleaning up after one's self was perceived to vary, and unclear ownership issues could lead to inaction.

Open sharing of knowledge and ideas

In addition to networks, ADF activities were shaped by open sharing amongst the community members. Descriptions of engaging in or outcomes of open sharing of ideas, knowledge, and expertise were given by interviewees from all groups. The overall atmosphere at ADF was described as generally being supportive towards openness and sharing. Some interviewees described how the presumption about the open atmosphere, and encountering people within the community with an open attitude and sharing their thoughts and ideas, effectively promotes adopting a similar attitude. Open sharing of ideas and knowledge was perceived to have numerous positive outcomes, such as building contacts, increasing knowledge, having opportunities to reflect on and test one's own ideas, and coming up with new ideas.

Täällähän löytyy aina kiinnostunutta porukkaa niin porukalt sit sai niitä ideoit tosi paljon ihan ohi mennen että, tosi moni oli valmis jakamaan, ideoita… …yleensä ku puhuu ihan arkipäiväsist asioista jonku vaikka kaverin tai, tutun, puolitutun kans täällä. Niin sit aina tulee jossain vaihees puhuu, puheeks se oma projekti, niin sit siinä sitte yleensä tulee sit et hei niin mutta tämmönen juttu ois hyvä autoihin ja, tämmönen ja, joskus kävi myös niin että puhu, vaikka oman ryhmäläisen kans siitä, sit joku vierestä sattu kuuntelemaan ja sit anto oman ideansa siihen ja, tolleen se aika paljon tapahtuu.… …muistan ainaki yhen tilanteen et, puhuttiin jossain, jonkunlainen PDP-luento tai workshop se oli, niin sit viereisest pöydästä joku oppilas ihan, sit puuttu siihen ja, mun mielest tommonen on aika yleistä ja, sit toinen on se että, esim. just jossain Kafikses puhuu ihan vaan, jonku tutun kanssa ni, siellähän nyt törmää noihin tuttuihin ni, sitte keskustelussa aina tulee niitä, ideoita. (student)

Different structures at ADF were perceived to support and facilitate openness and sharing of ideas and knowledge. Specific supportive structures identified by the interviewees included spatial solutions (i.e. the open office, centralized coffee makers), methods (e.g. the PD6 workshop-method utilized in many courses and events), and events (e.g. the breakfast). A researcher describes sharing an open office with other research groups and individual researchers:

Varmaan henk.koht. asioita tulee paljonki tietoseks, tiedoks siellä [avokonttorissa], osa jakaa niitä enemmän kuin toiset. Älyttömästi siel on liittyny tai siirtyny tutkijamaailmaan liittyvää tietoo, sellasta, aika paljon kaikkea vinkkejä ja vihjeitä liittyen eri konfiin tai muihin tollasiin, esimerkiks just haastatteluihin ja niitten kysymyksiin, johki kyselyitten laatimiseen tai mihin tahansa tollasiin asioihin, paperin kirjottamiseen hyviä juttuja ihan vaan word flowta miten ihmiset tekee juttuja, miten ne kirjottaa ja kaikkee tollasii erilaisia työtapoja. Ja muutenki sit ehkä

mahdollisuudet aukenee, tai valkenee eri mahdollisuuksien kirjo koska sitte siel on enemmän kokemusta jaossa kerralla. Ja sit ku tulee juteltua kaikennäkösestä ja kuulee eri ihmisten kokemuksista, toisaalta tavotteista ja muista niin sitte tietää paremmin sen koko scenen. Se on kyllä silleen mahollista, hyvä. (researcher)

Nevertheless, some concerns were also voiced related to the atmosphere and principles of open sharing (n=5). Some events, courses or operators were noted to require more secrecy than the environment is seen to allow for and some interviewees were somewhat concerned about presenting work in progress openly to other members of the community and specifically the numerous visitors in fear of idea theft or losing the novelty of the ideas.

Well we have been thinking that we could bring our own things and prototypes here to test directly. Of course the challenging thing in this place is that here you have a thousand other people listening to your ideas and utilizing them right away. Ultimately, the novelty that will disappear from it. (researcher)

Fast-paced interaction and execution

Finally, fast-paced development was perceived as a hallmark of ADF action, and an important part in creating the mentality of doing, ("tekemisen meininki"). The speed had been reflected in short idea-action cycles, with ideas being implemented or parts of them tested very soon, and the first concrete steps had been taken as soon as possible.

No me kokeiltiin tällasta Mummotaksi 2.0:aa ja se piti olla vaan senioreille suunnattu uus taksi. Tosin oli meillä myös toinen idea siihen liittyen, et ihmiset kenellä on jo autoja, vois muodostaa verkoston sellaisten kans ketkä tarvii kyytiä. Me heti vaan tartuttiin toimeen Mummotaksi 2.0 -idean kans ja lähettiin kokeilee. Seuraavana päivänä vuokrattiin auto, ja sit mentiin seniorikerhoon, jossa osa olikin tavannut meidät jo aikasemmin. Jotenkin ajatteli mielessään jo, et miten se kokeilu menee: me mennään sinne hakemaan kyytiläisiä ja viedään jonnekin, minne he haluis mennä. Ei tullu mieleenkään et vois tapahtua jotain muuta. Mut eihän yksikään halunnu edes tulla meidän kyytiin! Syynä oli eläkeläisten tarkat päiväohjelmat; pitäs varautuu jo viikkoo aikasemmin. Plus et he ei tuntenu meit vielä oikeesti sen vertaa, et vois luottais meihin niin paljon, että noin vain hyppäis kyytiin. Se oli tosiaan aikamoinen yllätys. Yks me taidettiin sielt kerhosta viedä kotiin, et onnistu lopulta se kokeilu jotenkin. Ja kyl siin tietysti oppi, et miten suunnittelijat usein luulee tietävänsä tällaset kaikki asiat, et mitä käyttäjät tarvii ja millaista, mikä nyt heidän elämää vois

auttaa, tässäkin nyt oli ihan selvä erityisryhmä kyseessä. Tosi usein suunnittelijat siis luulee tietävänsä asioita, jotka ei sit ookaan totta. Nopeet kokeilut paljastaa monet reaalimaailmaan liittyvät oletukset vääriks, ja taas toisaalt auttaa tuntemaan kontekstii. (researcher)

Also interaction was perceived as speedy. The community members had been able to take part in activities on a very short notice, ranging from giving a tour of ADF to moving to another country in order to take part in a work project. Decision-making had also been speedy when reacting to the information and needs expressed by others, giving the green light for new projects immediately, presenting solution options on the very next day, or scheduling meetings right away.

In addition to providing faster development and learning, the fast pace of action was seen to have several other benefits, as well. Both demonstrating results quickly and the fast pace of change were perceived as generating interest and enhancing the role and reputation of the ADF activities and actors. On courses, frequent deadlines were perceived by the students to have a positive effect on motivation due making progress and completed steps concrete, as well as diminishing excess dwelling.

Typical support received from the ADF community

Nearly all interviews contained experiences of receiving support from the ADF community members. The support could either be intangible, in the form of providing enthusiasm, encouragement, and inspiration, or concrete help in development experiments and practical matters. As a result, the community members described themselves as more courageous and enthusiastic in their interaction and development work, and they engaged in more concrete doing.

It is noteworthy that although the received support was perceived to have a large impact, the support had mainly been positive reactions and small acts of help in planning and executing development efforts in their work, not requiring significant investments of time and resources in any single case. Most of the support had been received from the ADF staff members, while other ADF community members had provided support mainly in the form of inspiration.

Key points in support received from the ADF community members

- Small things matter: development work was perceived to be greatly supported by the reactions of enthusiasm, encouragement and helpfulness that other community members had, as well as the small acts of practical help in planning and execution

- Enthusiasm seems to be contagious and the presence of positive examples of different forms (events, practices, individuals) has inspired development action

- Numerous instances of received support were reported by all ADF community groups, and especially the high number of help-receiving students is noteworthy, for whom practical support in experimenting seemed to be particularly significant

Table 4. Typical support received from the ADF community

Category	Content	No. of segments	No. of contributors in the groups of				
			Teachers	Researchers	ADF and other AU staff	Students	Company representatives
Inspiration and enthusiasm from the community	Enhancing enthusiasm, finding (role) models and inspirational examples, exciting others	69	6	3	10	7	4
Receiving help from other community members	Receiving practical help, others perceived as putting effort into help giving, general helpfulness towards everyone	53	6	2	13	4	4
Support for experimentation	Receiving help for experimenting, increasing concrete doing, and the facilities and atmosphere encourage experimenting	43	6	4	9	13	2
Building courage	The ADF community has been encouraging towards people and ideas, and community members have become more courageous	42	4	3	7	4	1
Total		**207**	**9**	**8**	**22**	**18**	**7**

Inspiration and enthusiasm from the community

One of the main forms of reported support received at the ADF, that had affected the interviewees' work was intangible: enhancing enthusiasm and finding sources of inspiration. Enthusiasm was described as contagious at the ADF (n=33), with the interviewees becoming more enthusiastic after observing inspiring examples, being exposed to a generally enthusiastic atmosphere, witnessing the excitement of others, and participating in events.

Here we somehow have this kind of atmosphere, that is somehow free and really inspiring, and here enthusiasm is permitted (…) after all the kind of environment where everyone is really enthusiastic and energetic, somehow that kind of an environment supports oneself also, so that your own direction remains, or that you are like that as well. (researcher)

Kyllä on muhun kylvetty semmonen innostuneisuuden siemen tästä, mitä koulutuksella voidaan saada aikaan. Sen näkee ihmisten kasvoista tuolla ja.. joo, kyllä se on. Mutta mun kohalla se on entisestään vahventunu se täällä, se halu tehä koulutuksen parissa töitä ja arvostus.. opettamista ja tiedettä ja muuta kohtaan. (company representative)

The interviewees reported finding role models in the community (n=17), with descriptions of attempting or intending to follow in the footsteps of other Aalto faculty, of teaching events such as the PDP Gala, PD6 workshop and Opefoorumi (a monthly teachers' meeting), and of observed practices in education, documentation, advertisement and recruitment. Many also reported encountering inspirational people and activities through acting in the community.

Esimerkiks vaik tää [ADF:llä toimivan startupin perustaja], niin on semmonen ihan supertyyppi ollu mun näkökulmasta siinä, että ei oo, et asiat vaan on mahollista, et asiat vaan tehään, ja ne tulee mahollisiks, ja sit myös omalla esimerkillään näyttäny silleen et kaikennäköst voi tehä, tost noin vaan tyhjästä rupee tekee, et se on mahollista. (researcher)

Kyllä ne highlightit on kans ollu, mä oon käyny kaikissa niissä PDP-gaaloissa, niist mä oon tykänny hirveen paljon, et mä oon saanu tosi paljon ideoita niistä, et mä nään miten ne on suunniteltu ja miten ne on toteutettu. (teacher)

Mä luulen että Design Factory on opettanu meille myöski sen, että meiän täytyy dokumentoida meiän tämmösii tilaisuuksii ku mikä tää oli, ja tehä niistä tommosia lyhyitä tai erilaisia tietopaketteja, jotta me voidaan ihmisille kertoo et miten se tapahtuu se tekeminen. (teacher)

And another moment was of course [the professor telling about her experiences in developing her course at the Opefoorumi]. That was also a topic that I would say you can't do it, you just can't. And then, her courage to really try this out and then the results, and then several factors which are very, very important about, for example the very, ultra-enthusiastic students about how to calm them down, how to make them, a little bit calmer environment for learning, for their benefit and for the others' benefit as well. These were really big challenges that she needed to deal with, but it works. And I really liked her courage and her, a little bit different thinking. But I also sense the big support of Design Factory on making some kind of things. That was a very big energizing. (teacher)

In addition to reporting numerous instances of becoming more enthusiastic and finding inspiration themselves, some interviewees also discussed the challenges of maintaining high levels of enthusiasm in

others, for example in the context of course projects. Nevertheless, the ADF community was characterized as being highly enthusiastic in general.

Help from other community members

In addition to providing inspiration and encouragement, the ADF community members were perceived as being helpful (n=26). In addition to the experimentation help received at ADF (n=18, see the next section), numerous examples of help giving in other contexts were also reported. These examples of help mainly concerned concrete matters such as organizing workshops, software usage, printing, and making presentations. In the vast majority of the examples reported by the interviewees, the help had been received from members of the ADF staff. Often help was received after specific requests, but some examples also emerged where publicly voicing challenges was enough to prompt help offers from bystanders.

> *For example, I had to install a plexi hatch to my sailboat, I had it with me in my car, and needed a couple of holes in it, so downstairs there's the power drill. I went there to drill and the that size drill bits were out. Then I came here and asked, I can't remember their names, but they were here and were instantly "Yeah, okay, I'll come and see!". Not like "Who are you? What expenditure slot is this for? And be sure to bring it back immediately after you use it. (teacher)*

The help receivers perceived that effort was put into providing timely help to them, and that help was received across organizational boundaries. The help givers also reported a willingness to help any variety of help seekers, and giving back to the community was mentioned several times as a motivation for providing help.

> *Se.. kurssi anto.. niin paljon, et tuntu et haluaa antaa jotenki takas. Ja, olla, mukana siin hengessä. Tai, et haluu auttaa, näit uusia opiskelijoita, samal lail ku meitäki, autettiin. (teaching assistant)*

> *I think, for example, it's great working with, I mean, when I've needed anything from any of the other teams, it's been great. I always go, we have a good talk, and we, I mean, I get a lot of people who are willing, I mean, I have this student or I would like to do this myself, for example I go with the machines, people, and they always find the time to help me out. And it's been very two-way. (ADF staff member)*

However, a couple of interviewees also reported that the potential benefit from other ADF community members had not yet been realized or that others had not engaged in help giving. As the reported examples of receiving help nearly all described receiving help from the ADF staff members, there seems to remain some untapped potential in support being received from the wider ADF community.

Support for experimentation

In addition to general helpfulness and encouragement, a significant proportion of support was targeted at facilitating experimentation. The interviewees reported 18 instances where ADF staff had helped in the realization of experiments, in terms of planning, advice, concrete execution and resources. For example, the staff had helped in choosing and finding the right tools for prototyping, or advised in teaching development.

> *No siis.. joka päivä tuli jotain uutta ja siin, tosi nopeesti, 310:llä. Siin tulee se et, vaan pakko alkaa tekee ja, hommaamaan. Ni sit se tuli tosi helposti tai siis, löyty, työkalut ja, missä nyt sit tarviiki apua niin, sai apua ja.. se, lähti liikkeelle, tosi helposti. (student)*

> *Opekumppani, jossa oli Maria (…) mun yhteyshenkilö, ja se oli mun mielestä erittäin hyvin mietitty systeemi ja todella tarpeeseen, koska se toimi just sillä tavalla, että se ei ollu pelkästään, et tullaan käymään ja pällistelemään, vaan et siin pannaan käyntiin jotain, ja siin oli hyvin matala kynnys laittaa käyntiin, et siin ties et saa Marialta apua kaikis asioissa ja Mariahan oli mukana ideoimassa, et mitä me voitas tehdä. (teacher)*

The community members had frequently carried out experiments and constructed numerous prototypes during their stay at the ADF. The ADF facilities had been perceived as crucial in enabling these fast prototypes and experimentations (n=17), and also the atmosphere was perceived to encourage experimentation. Concrete doing had been adopted as a useful way of working, and the ADF community was described to increase visualization and concrete doing, as well as to demonstrate the benefits of the aforementioned aspects for learning outcomes.

> *I can sit here for longer periods of time, thinking about the ideas, what I want to implement in the project. Then I have these tools available downstairs, so I can just go there and I don't need permission at times from the people, "can I use your, can I do this or that". So.. it's like, a kind of an independent atmosphere, whatever you want you can do there. (student)*

Jos jollain oli joku juttu, ni se kerto sen, ja sit joku toinen lähti komppaamaan sitä ja sit synty joku idea ja sit se veti eteenpäin, ja tavallaan, et kukaan ei missään vaiheessa sanonu, et hei, ootteks te tehny projektsuunnitelmaa tai ootteks te suunnitellu tän jutun tai miettiny sitä sun tätä, vaan se pointti oli siinä, et tehään siistejä juttui, kokeillaan niitä ja jos ne onnistuu ni hyvä, jos ei, ni ei sillä mitään väliä oo. (Aalto staff member)

ME310 Paperbot – Lowering the threshold for electronic prototyping

ME310 is a very involving, very challenging and extremely demanding product development course. The course is co-produced with Stanford University's Center for Design Research. Worldwide ME310 community actively seeks for new ways of supporting the learning outcomes and enabling students to come up with better results.

ME310 teaching staff discovered that while most of the course projects include something related to electronics, just a few people have the basic skills to do it. This leads to a problem of postponing the beginning of electronics prototyping. To solve this issue the teaching staff decided to arrange a competition to make simple robots. This sounds complicated for a student with hardly any experience of electronics or robotics.

 A plan was made according to the ME310 culture of bravely facing the problems and solving them: They bought some basic components, microcontrollers, actuators and other stuff and set a competition of who makes the best robot that responds to some human inputs and produces some concrete outputs and also expresses some given basic feelings. The robot should be done in a ridiculously fast pace and short time, only in 4 days and 4 hours. In collaboration with the Design Factory's Service Team all the components were selected to have as low entry level as possible and also to be versatile enough for the possible future use. ME310 course and Design Factory acquired the components to be ready and available for the teams. Just like that, everything was set for the student performances!

The ME310 students were divided in five multidisciplinary teams of three students. Some groups included, for example, a future architect, social psychologist, and a wood technology engineer. Thus, it was obvious that most of the students had minimal previous experience on the task. The outcomes of the competition varied a lot. The teams built robots such as a blood-sucking insect which does not like light and is killed by clapping hands together, a troll that hugs people and is very excited to meet new people from close distance, a paper bag that steals bottles, a troll that lives in a box and is very angry if exposed to light and an angry Frenchman robot that carries a French bread and vandalizes any people who tries to steal it.

The feedback from the students was extremely positive. They liked the competition concept and thought it was fun and educating. Most importantly they felt that the original purpose was met really well: the barrier to start prototyping of electronics was significantly lower than before the competition. Low-level robotics was proven to be quite easy to start and nothing to be afraid of. With right components and support from Design Factory's service team the task was found demanding but still feasible. The feedback to Design Factory from the ME310 teaching staff was very positive. They felt that the support from the Design Factory's service team was a corner stone and a foundation on which this kind of challenge was possible to be built and that the competition would have been much more complex and maybe impossible to be organized in conventional laboratories in a conventional way.

Jussi Hannula

Project Manager
Aalto University Design Factory

Building courage

In addition to receiving more tangible support, the interviewees frequently reported receiving encouragement from ADF community members (n=26). Especially ADF staff members had expressed belief in the interviewees' abilities and showed trust in them. The interviewees also felt that their ideas were not dismissed or disregarded and could be presented without fear of ridicule, and they perceived that others were sympathetic even towards potential failure, making risk taking easier.

Tietenkin se oli, sai apuu noilt Electroshopin pojilta. (..) Mut lähinnä kai siin, just se et.. luotto oli kova. Sekä tiimil et, me voidaan saada siit jotain aikaseks, että sitte, näil jotka, seuraa sivusta tai.. avustaa, tai osaa vastata kysymyksiin, oli se sit itse tiimi tai, täällä henkilökuntaa niin siin oli et "joo, tee vaan, kyl siit hyvä tulee!" vaikka itellä meinas välil vähä, usko loppua." (student)

Mun mielest se avoimuus mikä tääl on, tavallaan omalta osaltaan luottamus siihen, et sulle ehkä ei naureta, et jos jaat jonku tyhmänki idean, koska mäki teen sitä hyvinki usein. (teacher)

As a result of the received encouragement and positive initial experiences gained in acting in new tasks at the community, the interviewees reported that their courage had increased, especially in the context of interaction. They felt that at present, they were able to more easily approach others, ask for help, take part in different activities, perform for an audience, and be more active in their social environment. Also fears of performing and communicating in foreign languages had reduced. In addition, experimenting, pursuing new ideas, and undertaking development work in general came more easily to the ADF community members at the present than before.

Se virtuaalilaboratorio, se LabLife 3D, niin se synty aika pitkälti sit siitä että, mä rupesin miettii sitä että oikeestaan on myös, tai satuin lukemaan aika paljon tällasista oppimistiloista, ja sit mä rupesin miettii et okei, että tietysti on myös virtuaalimaailma, et ois kiva kokeilla myös sitä. Ja mä en ois ikinä kokeillu sitä, jos en mä ois ollu ensin täällä. Koska mulla ei ois ikinä ollu varmuutta ajatella, et mä voisin kehittää jotain virtuaalimaailmaa. Niin sitä me ruvettiin tekee. Sillai että sitä ei tehty välttämättä täällä, mut tää oli aika paljon semmonen incentive tälle jutulle.. (teacher)

Mulla oli siihen aikaan jonkunnäkönen tämmönen esiintymisfobia tai joku tällanen, sit siel oli karaokevehkeet, (…) Ja sit porukka rupes, yllätys yllätys

laulaa karaokee. Ja sit siin oli semmonen mieletön ryhmäpaine, et mä aattelin et no must on kiva kattoo ja laulaa mukana, mut mä en mee tonne eteen. Sit siin tuli sellanen tilanne et ihan kaikki pakotti mut sinne. Siis se oli et mul ei ollu mitään muut vaihtoehtoo kun laulaa, ja mä en oo laulanu ikuisuuksiin ja mun mielest, sillon, mä olin sitä mieltä et mul on ihan hirvee ääni, et tää on ihan hanurista tää tilanne. Ku sä et voinu tehä, sä et voinu paeta ku toi porukka on sellasta, et sä et voi. Sit mä lauloin, ja sitte porukka oli, tosi kannustavaa et vaik se meni jotenkutenki, ni porukka oli ihan tosi meiningis mukana ja silleen kannustava, ja silleen positiivinen, ja sillä seurauksella, et mä koko yön lauloin karaokee. Mä sain siit niin mielettömät kiksit että se oliki oikeesti sit aika kivaa, ku ylitin semmosen jonkun henkisen vuoren siinä. (Aalto staff member)

No itse asiassa kielitaito on parantunu täällä ollessa (…) tavallaan se että täällä, jotenki on tottunu puhuu toiselle ihmiselle englantia niin se on, jollain tavalla ei oo kynnystä puhua. (…) periaattes mitä mä nyt oon oppinu sillee et ei sil oo oikeestaan mitään väliä, [puhuu nauraen] tää nyt kuulostaa taas hyvältä, mut et ei oo mitään väliä että onks se kuinka oikeeoppista kunhan se nyt tulee oikeesti ymmärretyks et on vaan rohkeesti puhuu asiansa julki. Koska mikään muu ei siin tilantees auta. Että sinänsä se on ollu, ja myöski mitä natiivit puhujat sanonu, niin ne arvostaa sitä et sitä yrittää ja, koska aika, nii.. Et siis siin mielessä, mä luulen et mua on jännittäny enemmänki sitä,(…) mut et, kyl se, ei mulla enää oo mitään stressiä, mä pystyn menee tilanteeseen ku tilanteeseen (Aalto staff member)

Characteristic features of the work of ADF community members

Many of the experiences reported by the community members described the content and qualities of the interviewees' individual work – whether related to teaching, research, development or studying. In addition to all community members reporting conducting developments in their work, many other common features emerged as well. Typically ADF community members perceived their work as being motivating, conductive to learning, and possessing a high degree of freedom. As a result, they put themselves on the line, and perceived their work as demanding. For many ADF community members, spending time and working at the ADF had helped them in discovering and clarifying the role and goals they wanted to pursue in their careers.

Key points concerning the individual work of the ADF community members

- Development work motivation and efforts are increased and maintained when the results of one's work are visible

- Exposure to new situations and application opportunities increase both learning and awareness of one's skills and goals

- Freedom in one's work is valued, but as a result, maintaining a manageable work load presented itself as a challenge

Table 5. Characteristic features of the work of ADF community members

Category	Content	No. of segments	Teachers	Researchers	ADF and other AU staff	Students	Company representatives
					No. of contributors in the groups of		
Motivating work	Seeing the results and impact of one's work is motivating, work is described as interesting, motivating and fun	42	4	2	13	4	0
Learning in one's work	Learning as a result of ADF activities and reflection, eagerness to learn	36	5	4	8	1	4
High degree of involvement	Giving a hundred percent, doing more than is required, pursuing goals persistently, acting outside one's comfort zone	26	2	4	3	5	0
Strain from work	Having an overload of work, stress, insufficiency of one's resources	27	2	4	12	3	0
Finding one's niche	Realizing and clarifying what kind of work one wants to do, finding and clarifying one's role in work	23	1	2	6	4	2
Freedom in work	Having a high degree of freedom in deciding what one does and how the work is done	21	1	2	7	0	2
Total		**175**	**7**	**6**	**18**	**7**	**6**

Motivating work

As a rule, ADF community members seemed to view their jobs in a very positive light. They perceived their work as motivating, interesting, rewarding, and fun – this seemed to be the case especially for the ADF staff members. Most examples of motivating experiences described by the ADF community members were centered on seeing the result and impact of one's development efforts (n=22), highlighting the significance of experimentation, a hands-on approach, and fast iterative cycles.

2009, niin siin alussa oli mun paras ikinä kurssi. Se oli se ensimmäinen kurssi DF:ssä. (…) ne oppimistulokset oli niin hyviä, et mä vihdoin näin et ne ihmiset oppii. Mä uskoin siihen, et mitä mä teen, johtaa oppimiseen. Ja

*me oltiin täällä Design Factoryssa sillon. (…) me seurattiin sitä kurssii sillai
et me, Päivi ja sitten tuo Zittingin Eija autto mua tekemään sellasen
palautekaavakkeen, jos me seurattiin koko ajan sitä ryhmäytymistä,
oppimiskokemuksia ja millä lailla ne muuttu ja miten ne itse heijasti sitä
käsitystä siit oppimisesta. Plus se et sit lopuks niillä oli ne esitykset, joissa
ne esitti kaikkee ilman PowerPointia, joka on insinööreille kauhistus. Mut
näki että ne oli oppinu itestään paljon, koska ne oli hirveen luovia, ne oli
oppinu siitä aiheesta tosi paljon, ja sit ne oli oppinu toimimaan yhessä.
Elikä se oppiminen ei ollu rajottunu vaan siihen tieteeseen, vaan kauheen
ilonen oli et semmoset ihmiset jotka mä tiedän aina jännittää esittämistä,
oli täysin vapautuneita ja ilosia, ja ne oli ymmärtäny sen että jokanen
ihminen on arvokas. Mä annoin niille jotain muutakin kun sen substanssin,
et se oli mun mielestä "jes". Se oli hieno. (teacher)*

*Siin talkoissa mä varmaan koukutuin lopullisesti, (…) et siel oli ekaa kertaa
niit startuppei. Ja sitte ne, kukaki startup sai ikään ku oman huoneen tosta
käytävän varrelta ja sit niit sai mennä jeesaamaan sinne. Ehkä tuli
semmonen olo, et pysty auttaan ensinnäki. Et se oli, ehkä kolmannen
vuoden opiskelija siinä vaihessa nii, oli semmonen hyvä kokemus, et oli
jotain missä pysty jeesaamaan, et siel oli vaik ulkomaalaistaustasii
tyyppejä, jotka ei tienny jostain Suomen jutuista niin hyvin. (student)*

Learning in one's work

In addition to motivation, learning was characteristic to many ADF
activities. The community members described learning taking place as
a result of ADF activities (n=17), in terms of learning by doing and
gaining opportunities to experiment with application, as well as learning
from observing the wide variety of actors and activities gathered at the
ADF.

*Siinä [kurssiss]) oli semmonen miniseminaari alussa siinä oli, itse asias mun
mielest vieläki tosi hyvät esitykset. Oli viis esitystä. Ja sitten.. Ne sai tehä
semmoset, niitten tehtävänä oli suunnitella silt pohjalta kurssi. Siellä oli
muutamia aiheita jotka ne ekan iltapäivän aikana valikoi niitten esitysten
perusteella, minkälaisen opetusohjelman ne suunnittelis. Se oli ihan, se oli
kyl tosi opettavainen just siinä, kaikessa siinä ryhmätyöohjauksessa kun
semmonen, eihän sitä opi ennen ku sitä tekee. Oikein kunnolla et tietää et
mistä se jää kiikastamaan ja se on kans siinä, sen mä huomasin että, yks
juttu jonku ryhmätyön vetämisessä on se että kuinka paljon ite uskoo
siihen menetelmään. (teacher)*

*Välillä naurattaa kuinka lapsi on taas ollut [puhuu nauraen] joittenkin
asioitten suhteen. Ihan käsittämättömästi, no tieto on lisääntynyt aivan
älyttömästi. Se että täällä, sen lisäks et täällä tapaa porukkaa niin, (…) Se*

että täällä on nähny tota startup-ympäristöä, niin se on kanssa ehkä aiheuttanu, toisaalta se on tosi kuumottavaa et porukka on tossa, vetää täysiä ja startup-hommaa näkee läheltä, sit rupee miettii et pitäiskö itte olla vetämäs jotain sellasta, et ku se on niin, täällä tosi näkyväs roolissa ja sit tulee joka tuutista. (…) Se että sitte tos tutkijan työssäki niin on aika paljon päässy pörräämään sitte, tää on sillä taval näköalapaikka että kun tutkimusluonteeseen kuuluu sitte se että käydään myös yrityksissä pörräämässä niin, siel on kanssa aika kivasti nähny sitte eri asioita. Et se et on päässy esimerkiks Pekan kanssa, joka on kokenu tutkija, konsultoiva semmoinen niin nähny yrityksissä miten siellä toimitaan ja näyny hänen kaa pörräämässä niin se on kanssa avannu silmiä. Ja tietenki muissaki yhteyksissä on sitte tullu tollasii, silleen näköalapaikka että aika laajasti näkee melko lailla kaikkea mikä tohon tuotekehitys-sceneen tai muutenki suunnitelumaailmaan voi liittyä. (researcher)

The ADF community members also reported reflecting on their actions, resulting in increased awareness and acknowledgement of one's own strengths and weaknesses. In addition, many highlighted their will to learn and develop their skills further, with particularly ADF staff members reporting to value the high degree of freedom offered by ADF specifically for its enablement of development and learning. For example, it was possible to learn to use new tools, take time to attend to interesting events and fit working together with studies,

I think it's wonderful that you can constantly think of what else I could do or what could I learn (…) That (former job) is maybe my burden in the sense that it was, I knew exactly what I would be doing each day and it became the kind of routine that turns off creativity and enthusiasm. Here you notice that the flame doesn't have to be extinguished at all. (ADF staff member)

Et se on ehkä semmonen, mikä täs on sitte oppinu täs duunis. Määhän oon tehny tääl myös ulkopuolisillekki hommia, et seki on ollu ihan hyvä, et itse asias aika jännää, et mä tein eräälle yritykselle semmost tuotekehitystä semmosen firman kaa, joka on ollu monta vuotta, ja teki sitä, niin ei se kyl tuntunu yhtään siltä, et ei ois valmiudet lähtee siihen semmoseen rumbaan, et se oli kans ihan jees. Et kuhan tekee parhaansa ja yrittää järkevästi tehä hommaa, niin ei siihen ees tartte panostaa mitenkään, silleen naama verillä, vaan kuhan tekee rauhassa ja hyvin ja ajatuksella. Niin kyl sit yleensä se tulos on yllättävän hyvä. (ADF staff member)

High degree of involvement

The interviewees described pouring a lot of energy into their work. Especially students reported working long hours and doing more than

the required minimum. The community members were also persistent in their efforts, for example one interviewee reported an illustrative incident where a start up company was not initially accepted in the Aalto Venture Garage Summer of Startups program, but the company members persistently shoved into all of the events, and ended up winning the program.

sitä ei oikeestaan tarvinnu erikseen järjestää mitenkään ihmeellisesti, tai tehä, et se vaan luonnistu tosi sillai luonnostaan et mennään, tullaan tänne näin ja tehään hommii, jengi teki pitkää päivää. Ja sit se pääty siihen että, aamulla tullaan tänne, tehään paljon settii, päivällä käydään vähän syömässä ja kävellään jossain pihalla hetken aikaa, sit tehään lisää settii ja sit se saattaa olla et no, väsyttää niin paljon et ei jaksa oikeen poiskaan lähtee et sit tehään vaik illallinen tos keittiössä. Et sit käydään kaupas jotain hakee ja tehään vähän safkaa ja, sit sen jälkeen se on joko semmost et muuten vaan pidetään hauskaa tai, mont kertaa meni siihenki et sit safkan jälkeen vielä jatkettiin jotain elektroniikkasuunnitteluu. (student)

(Päädyin ME310:lle) Ihan kiristämällä ja uhkaamalla [naurahtaen], ei, siis mä olin ihan rikki silloin. Se tuli juhannuksena tieto siitä, et mä en päässy IDBM:ään. Ja, sitte IDBM:stä, mä luulin silleen, että ME310:een haetaan pelkästään IDBM:n kautta. Ja, sitte mä muistan, et mä oon pommittanu Laurii viesteillä. Ja sitte, sit Greg oli täällä, ja mä, silleki oon varmaan mailannu, et mun on pakko päästä tälle kurssille. Mä en oo ikinä halunnu mitään niin aggressiivisesti. (student)

On the other hand, studying at ADF courses had repeatedly required stretching beyond one's own comfort zone, and Aalto employees in particular also reported that their colleagues and supervisors had pushed them into new challenges and arenas.

Leaving your comfort zone was in some way very comprehensive. That [entire PDP autumn] was like that. You are doing new things all the time and you are trying to develop all the time and so, but you were out of your comfort zone in so many directions, beining in the manager's role, being in the, doing some electrical stuff. Conceptualizing the future. There were so many different things, that you felt likenow you really need to put yourself on the line. And you somehow learned so much. (student)

Strain from work

Despite the many shared positive characteristics of the community members' work, it was clear that work was also perceived as highly demanding. Nine interviewees explicitly expressed that they simply had

been overburdened at least at some point during their involvement with ADF. Many also had doubts regarding the sufficiency of their efforts, and comments were made about other community members having also seemed busy and tired. This in turn could be perceived as negatively reflected to the overall climate of the ADF.

It was probably one of the toughest years of my life, it had nearly full-time studying and then full-time working. Well 16 hour working days (..) yeah, it was a pretty tough year. (student and ADF staff member)

Me tehtiin virhearvio siinä, koska me ei tajuttu kuinka paljon siihen menee aikaa ja vaivaa. Ja jos ei [kaksi kurssiassistenttia] ois ollu täällä, me ei kukaan lähetty yleensä koskaan kotiin ennen seittemää, ja me mentiin sinä syksynä ihan hulluuden partaalle kun se alotettiin. Se oli jotain ihan hirveetä, koska se vei niin sikana aikaa. Ja, sitten me.. Niin, [toinen kurssiassistentti] ei ollu ensimmäisellä kerralla mukana. Se mentiinkin vähän kevyemmällä, mut se toinen otettiin sitten tosi tosissaan, ja sillon, [kaksi kurssia] yhtä aikaa ei oo mahdollinen kuvio. Tai siis, se ois tarvinnu itse asiassa yhden ihmisen lisää ja meitä oli vaan kuus ja kaikilla oli kädet täynnä töitä. (teacher)

Ja se raskas vuosihan oli muutenki sen takii että päivät oli aika pitkii. , (…) mut siis se arvio sit sit ku mä heitin sinne sit loppuarvion paljo siel jenkeis tuli tehtyä sellast, siis, oiskohan se jotan 1100-1200 tuntii. Siihen [kurssi] projektiin tuli tehtyy. Niin sit ku ottaa huomioon sen et suomalainen tekee keskimäärin 1700 tuntii töitä vuodessa. Niin sit, mä muistaakseni tein sillon sitä, olisinkohan mä tehny 60% työviikkoo tai 55% tai jotain (…) ja sit siihen lisään sen sit siihen 1200, niin siit pääsee about kärryille silleen et mikä se ihan vuoden työrupeama on sit ollu. Ei mua missään nimes kaduttanu se mut sit, (…) Mut tavallaan se et siit vuodest kertoo tää mihin tää juokseminen liittyy on se et mä en ehtiny edes urheilla sillon ollenkaan, siit syksyst eteenpäin. Et mähän tein sellast 10-12-14-tuntist päivää täälä. (…) Et ei sen jälkeen sit ku on tehny sellasen niin se oli kyllä yleensä aika sillee himaan ja silmät ristissä ja nukkuun. (student and researcher)

On the other hand, the ADF environment could also offer refreshment and the opportunity to focus on one's work for those who spent the majority of their time in other environments. In addition to acting as a source of inspiration for the community in general, for these community members ADF was perceived to offer better opportunities for concentrating on and pursuing development work compared to their daily environment.

Finding one's niche

As a result of the activities that ADF community members had pursued and taken part in, the goals and role that they wanted to pursue had become more clear. The interviewees had become more confident about what they want to do (n=15), whether it was to teach, pursue a career within the university, develop products, do concrete projects, prototype or concept design. The community members had "found their own thing" either in a moment of epiphany, finding or participating in a new project, or it had shaped more gradually during their extended stay at the ADF. ADF community projects had also helped to clarify one's role in a team (e.g. as a coach or middle-man), and broaden the scope of roles.

Tos PDP:n aikana, vähän, ns. löysi ittensä. Silleen huomas mitkä jutut on mielenkiintosii, ehkä vähän huomas myös et mis, mitä, minkälaisiaa juttui osaa tehä. (student)

All these experimentation things, they have become my thing even more, and that is where I intend to build my academic knowledge whenever I have the time. To find, to increase my own competence through this. (researcher)

Lähtee sellasesta tilanteesta et sä oot toisella töissä ja teet toiselle käytännössä ihan muotoilutyötä, niin siihen että yrittäjänä sä joudut tekeen itse ihan kaiken. Lattian imuroinnista myyntiin ja puheiden pitämiseen ja yrityskehitykseen ja siihen luovaan työhön ja niin kun aivan kaiken. Niin kyl siinä pitää olla semmonen monitoimiosaaja. (…) Ja sit sitä on turhan tehdä et kyl semmonen monien alojen osaaminen niin se on semmonen jatkuva juttu, et jos mä aikasemmin olin suunnittelija niin nyt mä oon myöskin, myyjä ja markkinoija ja sitä sun tätä. Se on se ison kuvan ymmärtäminen. (company representative)

Freedom in work

Finally, having a high degree of freedom in what and how one pursues in his or her own work was highly appreciated within the ADF community, especially by the ADF staff members. Freedom in defining and developing the content of one's work was compatible with accommodating for changing development needs as well as personal learning, making work more meaningful.

Se on niin tosi vapaata, ensinnäkin jo ihan työajoista lähtien ja työpaikast tai missä sitä työtä teet fyysisesti. Ja sit on myös tosi, sit kun tavallaan saa

myös epäonnistua ja saa kokeilla tosi hullujakin juttuja, niin se on tosi ihan mahtavaa. En mä tiiä, en mä ainakaan ikinä oo ennen sellases työpaikas ollu, jossa näin olis, et se on ihan tosi fantastista. (researcher)

While the flexibility regarding the location where and time when the work was done was perceived as positive, it was also described to generate some challenges in coordinating and integrating the efforts and schedules of different community members.

Typical characteristics of the ADF platform

While the other result categories describe the people and work of the ADF community, many of the experiences reported by the ADF community members were related to the ADF entity itself rather than any one part or aspect of it. These experiences could be roughly divided into three types: perceptions and effects of the ADF physical manifestation, perceptions and effects of the ADF structures, and the role and effects of the ADF within the Aalto University.

ADF facilities were frequently noted to support and enable the work of students, a wide range of activities, experimentation, and to generally provide an experience of being allowed to, or empowered to act differently. These views were shared across all user groups, with the facilities supporting teaching and learning being specifically emphasized. The home base provided by the ADF physical premises was perceived important for interdisciplinary and inter-organizational teamwork, especially for students. However, while the environment was described as facilitating interaction and collective activities, some challenges were experienced with being able to focus on individual work.

The lack of bureaucracy and high degree of flexibility were perceived as key ADF characteristics in enabling development. Indeed, ADF was perceived as a source of renewal and a platform for experimenting within the entire Aalto University. However, the need for some basic structures was apparent, and the majority of negative experiences related to Aalto Design Factory were related to unclarities with issues such as the use and purpose of spaces, the overall flow of information, and practical issues related to daily routines and activities such as organizing courses. In addition, the overall purpose and role of Aalto Design Factory itself was considered to be somewhat unclear for many of those outside the community.

Key points of the perceptions of ADF platform characteristics:

- The flexibility and the lack of bureaucracy and structures at ADF affords faster and easier development, but includes some drawbacks such as unclarities and discontinuities in the flow of information

- The flexible and unpolished nature of the spaces have an important role in communicating the freedom to take action and

act outside the norm, and ADF in general was perceived to have a role in renewing Aalto

- The varied and flexible spaces facilitate a wide range of activities, experimentations, and teaching methods, and provide an important home base for interdisciplinary and interorganizational work groups

Table 6. Characteristic features of the ADF platform

Category		Content	No. of segments	No. of contributors in the groups of				
				Teachers	Researchers	ADF and other AU staff	Students	Company representatives
The structures of the ADF	Flexible and non-bureaucratic arrangements	Flexibily and lack of bureaucracy affords faster and easier development, ADF structures more flexible than elsewhere	41	5	3	10	1	3
	The need for basic structures	Need to complement flexibility with some basic structures and procedures, suggestions of having more systematic procedures	47	3	4	9	0	1
	Unclarities in job divisions, activities and residents of ADF	Unclarities in the ADF staff roles and responsibilities,who to ask for information and lack of information about who resides at ADF and what type of activities are pursued by the community	43	7	2	10	2	2
The physical manifestation of the ADF	Spaces facilitate a variety of activities and learning	Flexibility and variety of spaces provides opportunities for wide range of activities, the spaces convey a message of being allowed to do things differently and provide opportunities for the use of various teaching methods	68	6	6	10	6	4
	Unclarities regarding the facilities	Unclarity about the aims and motivations for changes, the right to use spaces and continuity, unclatiy and misunderstandings about where to find and how to use the spaces and tools	33	7	5	4	1	2
	The importance of having a home base	Having a home base supports the work of interdisciplinary and inter-organizational teams by providing flexibility for work	13	2	2	0	3	2
	The balance between interaction and individual working in solitude	Preferring being around people versus having difficulties to concentrate own individual work due to the open atmosphere and large amount of visitors	16	1	2	2	3	5
	Physical location of ADF	Location of ADF at Otaniemi affects usage of the space	9	3	1	0	3	1
The role of ADF in Aalto	ADF initiating and promoting change within the university	ADF seen as a catalyst promoting change within Aalto, stabilization of the position of ADF within Aalto	58	6	4	11	1	2
	Unclarity about the role and purpose of ADF	Lack of understanding on what can be done at ADF and what the overall focus of the platform is	18	1	3	5	2	0
Total			**346**	**12**	**10**	**28**	**15**	**9**

57

The structures of ADF

Flexible and non-bureaucratic action

Flexible arrangements and the lack of bureaucracy were described as a central positive feature of the ADF. Community members reported that it was quick and easy to start and implement new projects due to the flexibility of the ADF environment and community (n=20), and the flexible arrangements offered more possibilities for development and experimentation compared to traditional, bureaucratic university arrangements.

Tää nyt on ihan ylivoimanen tilantarjoaja tai resurssien tai tämmönen fasiliteettien tarjooja, koska tääl on paljon eirlaisii tiloja, tää on hyvin yksinkertanen, helppo käyttää, tää ei maksa mitään, me ei jouduta koko aikaa neuvottelemaan tai laskuttamaan tai maksamaan laskuja, sisäisii siirtoja tekemään, et tää on osoittautunu tosi kilpailukykyiseks, tämmöseks paikaks tehdä töitä. (teacher)

The need for basic structures

However, even though flexibility was perceived as a key enabler of actions at the ADF, the community members recognized a need for basic structure and procedures. The need was perceived as particularly apparent in the case of the common spaces and facilities, where challenges in keeping the spaces and facilities in good condition were described.

We were having problems of equipment not being returned, or we don't know who has this particular equipment that is not worth five euros, that is worth way more. And we don't know, so we agreed that we wouldn't let anyone take any equipment without putting their name on a list. And also if a student needed to order things, it would be ordered with this, I mean, sending a request and do it in an organized way. But well, that's one of the things that okay, I got, yes, of course, that's the way should do it. And then next time we have this check-up, everything's just the same. Things are not there, we don't know who got them. A lot of things were ordered and we don't know what project they were in, who authorized. Yeah, stuff like that. That was complicated, and also in the organization how it would work. We ended up, and certain incidents happen, so I had to mostly enforce, let's close the up-, you have two labs, basically, close the upper lab with a key. And only when we are there, it should, when any of us it should be open, we will give support, that's why we should be there anyways.. (ADF staff member)

Pystyiskö design factory sit tollasii, keksii viel jonku tavan, tai toimintatilanteet, et ihmiset jotka tääl käy ja työskentelee, opiskelee niin välittäis jollain tavalla siit omasta ympäristöstään. Eikä olla ku sit jossain sillee niin ku, tunkiolla. (…) Tää kuitenki yhteinen tila niin se että ihmiset pitäis vähä huolta aina välillä ehkä näkyy sellast et ei pidetä huolta, ja kiilaillaan ovia auki miten sattuu ja sellanen, siis ihan tommosii, maailman pienimpii asioita, mitkä sit vaikuttaa siihen et jos, aukikiilatut ovet ja sit, jos hävii jotain niin sit se harmittaa sitä kenelt se hävii. (researcher)

Unclarities in the job divisions, resident and activities of ADF

The overall flow of information was considered to be, at least at times, somewhat inadequate. Being sufficiently informed about what is going on was noted by some to be reliant on personal contacts and chance encounters. There was a feeling of not knowing what is happening and who is doing what. Some respondents felt that it was often unclear who the residents of ADF were and what kind of activities there are. For example, knowing what kind of research is conducted at ADF and which research groups reside at the premises was felt to be reliant on informal information from familiar community members and inadequately communicated in systematic ways.

Se on vähän hankalaa aina sitte mieltää se kuitenki, että mikä se Design Factoryn porukka on, ketä kaikkia siellä on sitte ja mikä siel on että, minkälaista tutkimusta Design Factoryllä tehdään, ehkä siinä on vähän semmosta.. se on enempi pääosin semmosen epäformaalin tiedon varassa, että siellä touhuaa ja mitä asioita siellä tehdään ja.. miten se porukka sinne kerääntyy sitte ja mitä siellä ne tutkijat, jota siellä on, vaikka ne ei ehkä oo siihen Design Factoryn ydinporukkaan kuuluvia ja miten ne on sinne päätyny kaiken kaikkiaan (company representative)

In addition, there were also some unclaritites in the division of roles and responsibilities, where the interviewees felt that establishing more structures would be beneficial. Some reports of successful ways of facilitating information exchange included "forced encounters" created by e.g. being able to get coffee from only one location in the building and events bringing people together. A need to facilitate the exchange and flow of information was brought up by several community members.

Et oikeestaan se miten mä oon oppinu nyt et täällä tieto kulkee, ni ehkä se on kaikissa organisaatioissa, siis täysin epäformaalien reittien kautta. Jos sä jaksat istuu tuolla baaritiskillä ja jos sulla on siis aikaa istua siellä ja jutella, ni siellä sä kuulet ne juttu, et sä kuule missään muualla niitä juttuja. Ja joskus se harmitti, tietysti täällä saatto olla joku helvetinmoinen

delegaatio käymässä ja meil ei oo mitää tietoa et tämmönen delegaatio on käymässä. Ni vaan tulee mieleen, et eiks tän alustan idea just oo mahdollistaa ne kohtaamiset, ni eiks nyt ois joku voinu kertoo etukäteen et tämmönen porukka on tulossa, et olkaa nyt paikalla. Et se ois sille delegaatiolleki lisäarvoa, et ois porukkaa kertomassa. (researcher)

The physical manifestation of ADF

Flexible spaces facilitate a variety of activities and learning

Aalto Design Factory as a place and its facilities were, in general, seen to successfully support and facilitate a diverse array of activities ranging from the work of individuals and students to different types of events (n=19). From the viewpoint of teamwork, organizing events, and hands-on working, no negative experiences or notable deficiencies related to facilities were reported, but the issues were brought up solely in a highly positive sense.

tilathan on ihan loistavat semmosen, 600 henkeeki tilaisuuksien järjestämiseen, siel on iso tila missä voi kokoontua, missä voi olla, pitää isompaa massaluentoa, muita vastaavia ja pystyy buukkaamaan hyvin myöski pienempiä ryhmätyötiloja, et pystyy hajottaan väen erilleen, et tilathan toimii hyvin dynaamisesti ja ne on toimii semmosille isoillekin massoille aivan loistavasti, mikä on aina positiivinen asia kaiken kaikkiaan, mikä oli äärettömän vaikee löytää, useinkaan sellasia tiloja missä on sekä ryhmätyötilaa että tilaa missä voi yhdessä olla sitte kaiken kaikkiaan, ja sit on myöski mahollisuuksia käyttää niitä.. pajoja ja työpisteitä sinne eri tavalla, että voi jopa tehdä jotain luovempaakin. Tai tämmöst vähän villimpääki käyttää hyväks niitä muita tiloja siinä pienemmillä porukoilla. Ni ehkä se antaa sellasta, pystyy tekemään semmosen kokonaisvaltasemman päivän ja.. suunnittelemaan sellasen kokonaisuuden, ettei oo pelkästään.. istutaan penkillä ja kuunnellaan ku joku puhuu, tai.. tai tehdään jotain (hyvin) formaaleja ryhmätöitä (company representative)

The possibility to freely use the spaces and modify them according to each users' needs at a specific desired time was seen to facilitate the work of students and learning, as reported frequently by both students and teaching personnel. Especially project-based courses, where student teams work on an assignment over a period of time, were seen to benefit from these possibilities. The students and staff participating in such courses felt that the spaces supported both individual ways of working as well as group work by providing the means for tangible work such as prototyping. The flexibility of the spaces was also seen to enhance interaction between the students on the courses.

It is difficult to imagine that this would be organized in anywhere else anymore than here, this is anyway so optimal place to organize such a course. Everything is so near here, those protoshops, and also that you are able to relax here, to cook and to talk some bullshit in Kafis and so on. I see that this is pretty optimal place for the PDP. (student)

In general ADF was seen to contrast the so-called normal university facilities and work environments in that, the environment allows for, or promotes, non-conventional ways of working, and doing things differently. Specifically the university staff, i.e. teaching personnel and researchers, brought this up. The environment was noted to differ from the stereotypical university surroundings and providing a feeling of being allowed to "be different" or "do things differently". For example a teacher describes the message conveyed by the spaces as follows:

They also experienced the environment to be safe in the sense that you are allowed to do, and also that it is not only some kind of fooling around that we have colourful rooms and soft sofas here and there, that this is a distinctive looking place, but that it is very important that this building is sending signals that you have the permission to be different. (teacher)

On a concrete level, it was also noted that the flexibility of the spaces provides possibilities for the use of a wider scale of modern and interactive teaching methods than the majority of the spaces normally used by the teaching staff at the university.

Se just oli hyvä, et täällä on vähän erilaisii tiloja, ja nimenomaan että tääl oli tämmösiä muuntelukykysiä ja isoja tiloja, et tuolla perinteisellä koululla, niin siellä ku meet luentosaliin, niin siel no kiinteet penkkirivit, eihän niitä pysty ees kääntämään sillai, et ihmiset pystyy keskustelemaan keskenään, et se on niin kuin elokuvateatteri, eli se on aika toivoton tämmösiin vähänkään moderniimpiin työskentelytapoihin. (teacher)

From experiential teaching experiment to improving the well-being of third world children

I conducted my first ADF course, Microbiology in Health Technology in Fall 2009. I had complited university pedagogical YOOP studies already in 2007, and was looking for a chance to change my teaching in a radical way. I started teaching at TKK in 1989, and as a professor, I continue teaching 3 to 5 courses with 30 to 80 students every year. After studying in UK and returning to Finland from USA in 1989, it was hard for me to adapt again to the Finnish teaching and learning environment. I had visited the Galas of the Product Development Project course in the former TKK Department of Mechanical Engineering, thus I was already familiar with professor Kalevi Ekman and Jussi Hannula when visiting Aalto Design Factory in 2009. Being constantly looking for an opportunity to change my teaching, I was worried about the resources: I only had one full time teaching assistant and one assisting researcher. When I contacted ADF in order to request for transferring some of my teaching there, Jussi and Eetu convinced me to transfer the whole course to ADF. I was convinced by the comprehensive support for radical change.

The greatest challenge in planning the course was combining academic, theoretical knowledge with learning through experiential group work also. In addition to having a very theoretical and challenging course topic, the students were required to work in groups for 9 to 12 hours a week. In order to experience the requirements of conducting this type of a learning experience in planning, implementation and further development phases, I instructed and facilitated each group as well as teached the whole course by myself. In the final seminar of the course, I forbid the students to use PowerPoint slides nor to write reports. Instead, I encouraged them to use ADF spaces and facilities. The students were also instructed to document their learning process, and the received feedback indicated that when it comes to experiential learning, it is critical to have team work skills such as delegating and compromising. The course gave me an opportunity to genuinly collaborate with the students, to approach teaching and learning from a new perspective and to become "us" with the students. Executing the course required new, important skills from me as a teacher, such as putting my own personality on the line, having a sense of humour and ability to listen the students.

In addition to the Microbiology in Health Technology course, ADF has enabled other development possibilities for me as well. This year my course evolves around UNICEF theme, concentrating on the challenges in availability of microbe drugs. The selected theme also covered some social, economical, and ethical challenges, drawn from discussions with ADF staff member Andy Clutterbuck. Andy and I met at the ADF bar in the lobby to discuss his UNICEF project on developing the hygiene facilities of Ugandan schools. The project topic had similarities with my course topic. The collaboration with Andy led to a request from the School of Art and Design: professor Pirkko Pohjakallio asked me to supervise a master thesis on a teaching experiment conducted in Uganda. My interest in collaborating in projects aiming to improve the well-being of the children in third world countries might continue with Society for Engineering Education (SEFI) activities in the future; Being a SEFI board member our task-force activities include collaboration with African countries from the viewpoint of engineering education. In my

opinion, the possibilities ADF offers have enabled the above mentioned activities. ADF as a place motivates and inspires me: even just drinking a cup of coffee at the Kafis provides me a moment to reflect and further plan my pedagogical work. Those moments are critical for me as a teacher: long teaching career requires methods and spaces for maintaining motivation, implementing pedagogical knowledge in practice, and channeling creativity.

Katrina Nordstrom

Professor (Microbiology)
Aalto School of Chemical Technology
Department of Biotechnology and Chemical Technology

Unclarities regarding the facilties

Despite the perceived enabling side of the facilities, unclarities regarding the purpose, use, and usability of the ADF spaces were brought up by the representatives of all community member groups except for students. The teaching staff and researchers were the most notable groups with such experiences. There were questions on what the motivations for, and the aims of some of the constant modifications of the spaces are, and some changes were not felt to have a positive impact.

One thing of course is the changes in the spaces that are done, that it is not told before hand that what is coming and is there something happening? Now, for example, the lobby, what is its function and will it change? I think it was pretty good then when it had the bar in there, why wasn't it good? Why is beings changed? These kind of things, I mean that even the staff doesn't always know that what's going on and why these things are being done. (ADF staff member)

There were also some experiences of unclarities regarding who can use the spaces, who to ask for permissions, and uncertainty about the continuity of being allowed to use the currently occupied spaces.

Se on välil sellanen, et kun tulee, ollu vaikka jossain pari kolme päivää muual duunis tuol kaupungil tai vaikka T-talol, niin sit kun mä tuun tänne,

niin tulee se, et "huh huh, onkohan valot vielä päällä". Että "onko minulla vielä työhuone" (researcher)

Also some of the infrastructure, such as the official systems for reserving the spaces, was seen as unclear. Indeed, space reservations were reported by some company representatives and outside teaching personnel to be frequently made by calling a familiar staff member rather than trough the intended channels. Some users also felt that for example the technology found in the teaching spaces was complicated to use and instructions unclear. There were also reports of unclarity regarding the location and use of different spaces for outsiders and newcomers, and some reports were made of unclarity about technical issues, such as printing and the use of tools, such as camcorders (i.e. who can use them and how to get them).

Mut kyl siin mun mielest sit kuitenkin kesti aika kauan, mut sit, ku se on aina vähän tilariippuvaist, et en mä varmaan sitte viel keväälläkään uskaltanu siel mitään tehdä, koska ei ihan tiedä fyysisesti, et mitä siel voi tehdä. Mun mielestä ehkä paremmin pystyis, tai jälkikäteen itte yrittäny sit sanoa aina, että paremmin pitää informoida, mikkä nää maholliisuudet eri nää jutuissa, ja kaikkein eniten et ketkä ne ihmiset on, et osaa mennä puhuu oikeille ihmisille, et hei, nyt me halutaan tehä tämmönen ja tämmönen juttu ja sit voi kysyy, että mites se ois maholista. (student)

meil oli vuos sitten käytössä niitä pakkeja niiden asioiden rakenteluun, eli niitä mis oli Legoja ja klemmareita ja tämmöstä, niin siin osottautu sitten, että niiden se sisältö vaihteli aika paljon, et jotkut ryhmät oli vähän hämillään, ku niil oli sit kauheen vajaa se sisältö ja sit ne vielä ei raukat heti älynny sanoa, ni sitten ne joutu tekee aika suppeista materiaaleista ja pisti jotkut vähän omiaankin, jotain papereita ja teippejä ja muita siihen, niin se ois älyttömän tärkeet, niinku tommosia asioita ku tehään, niin niiden pitää rullata ihan oikeesti, et se pitäis olla silleen, et ku sen pakin saa, niin sen tietää, et mitä siel on, et siel on just ne tavarat (teacher)

Overall, these issues also raise the point that the proactive and do-it-yourself mentality of ADF can require some getting used to, and initial expectations and offerings may not always meet.

The importance of a having a shared physical home base

Having a physical home base was deemed as highly important (n=13), especially for students on the courses where the students from different backgrounds work as teams on challenging projects, such as the Product Development Project and Stanford ME310 -courses. The fact that the spaces support various types of activities from deskwork and

interaction to prototyping made working under the same roof possible even at times when different members of the team were engaged in different activities. Having a common physical space accessible for the whole team where the team can not only work together, but also engage in more informal activities such as cooking together was experienced to enhance the team spirit and feeling of togetherness. Not having to always be searching for a space for working and cleaning everything up after each session, but being able to pop in and out to work on the project and leave the work and materials to return to them later was emphasized as highly positive issue.

Se oli siistiä et oli yks paikka mihin, mistä tavallaan sai yhden tilan. Oli semmonen tukikohta että ei ollu sitä perus opiskelijameininkiä, että aina pitää että joku tila jossa voi tehä ryhmätyötä, vaan on semmonen tukikohta mihin voi jättää kamat levälleen ja palata siihen, mistä, jatkaa siit mihin viimeks on jääny. Ja toisaalta täält löyty sit kaikkee muutaki mitä tehdä aika silleen luontevasti yhessä, että [toisen opiskelijan] kanssa muutamat kerrat taidettiin käyttää, käydä soittamassa tuolla joitain kitaraa projektin aikana ja varmaan muutenki, että silleen luonteva paikka ja tääl sai olla kuitenki kohtuu rauhassa. (student)

From the perspective of the teaching personnel, having a physical home base at ADF for a course was noted to provide an opportunity to better showcase the course content and results, and offer support from a pedagogical perspective as previously dispersed student activities were brought under one roof and the involvement of teaching staff in the activities was enhanced.

In addition, the benefit of having a shared physical space was seen also within projects where the project group was formed of people coming from different organizations or groups, such as projects where the team is comprised of both students and people from companies.

And in the same way when we were doing that [company] project in China last autumn, a year ago, and we were using the Factory platform there for the project and it was very easy. And Matti was also asking the same from me, and I was like, god damn it, where on earth would [the project] been done if that [ATDF] place hadn't existed. Where? So in that sense it is an absolutely great thing. (company representative)

It was also noted that the physical space is critical for preserving and developing the shared culture by providing the infrastructure and helping new people to join in.

Possibility to interact with people and to work in solitude

Finding a balance between being around people and activities, on one hand, and securing a sufficiently peaceful environment for focusing on one's own work, on the other hand, presented itself as a challenge at times. Several interviewees reported that they preferred to spend their working time around people and some (e.g. start-ups) reported the buzz of people and activities as an important motivational factor for being located at ADF in the first place. Some interviewees expressed feeling isolated even due to being located in the 2nd floor and preferred the more central locations where people interact and "things happen".

Niin mä vieläki tykkään, työskennellä sillai niin et mä istun jossain tuolla käytävällä tai, tääl ympäristössä sillai niin et okei välillä, menee johonki vähän syrjempään mutta, muutenki on helpompi keskittyy ku on vähän hälinää, mut tavallaan se et pysyy ajan tasalla ja näkee mitä on. Ja et sit, sitä myötä tulee just niit mahdollisuuksii, sit tulee näitä et hei, meil on tämmönen workshop tai että, on tommonen asia niin.. (staff member / former student)

There were some reports (n=8) about having difficulties in focusing on one's work due to the constant interruptions and a disordered atmosphere resulting from both the overall arrangement of the spaces, such as an open office-style space, and the constant stream of visitors and mentality of openness that allows for interruptions.

Että tuolla avokonttorissa ei kyllä pysty tekee semmosta keskittymistä vaativaa kirjotushommaa, et yleensä sit mentyä muualle tai jäätyä himaan kirjottelee. Ja se on tosi vaikee ratkasta, sitä on kuitenki yritetty muuttaa sitä tilaa mun ymmärtääkseni, ja ei siihen varmaan, et tiiä kuka siihen löytäs ratkasun et jos sinne rakentaa suuret seinät niin sit se ei taas oo enää avokonttori, et emmä tiiä kellä siihen on joku ratkas. (researcher)

At that time we had the office downstairs at the corridor through which the tourist tours were always passing through [laughing], so it was pretty easy. But now we are clearly more on the side of everything, which is good because now it's much calmer to work in there. Down there it was almost a full-time job to block the people coming to the door so that they wouldn't walk in. (company representative)

The location of ADF at Otaniemi

With the current three Aalto campuses, the physical location of ADF in Otaniemi was mentioned as a factor affecting the usage by some respondents (n=10). Physical closeness was noted to increase the

usage and time spent at ADF, and some interviewees felt that Otaniemi is rather far away from the other campuses. Also an Otaniemi-based teacher reported that she had concerns about being further away from and less accessible to her students when working at ADF and not at her own department.

Se on sellanen fiilis, ja sit se on se, että mä oon aika semmonen vastuuntuntonen, et mua huolestuttaa että löytääkö ne opiskelijat mut. Ja kyllä mulla on siellä vastaanottoaika, mut et vähän semmonen tunne on että koko ajan miettii pitäiskö siellä olla enemmän ja muuta tällasta. Että sitä on kuitenkin, no tänne on kuitenkin matkaa ja ei ne opiskelijat välttämättä täältä mua löydä. (teacher)

The role of ADF within Aalto University

ADF initiating and promoting change within the university

Many of the interviewed community members described their views of role of ADF in relation to the rest of Aalto University. Several interviewees described ADF having an important role in renewing Aalto (n=16), in terms of being an important operator in building strategic international university partnerships and working as a showcase renewing the image of Aalto.

Meidän asema ulospäin varsinki vahvistu, ja huomas selkeesti että meidän rooli kasvoki yhtäkkiä aika isoks, et me oltiin tärkein lenkki uuden strategisen partnerin hankkimisessa… …Hannu just kommentoi sitä että edelleenkään ei oo yhtä ainutta strategista partneria oikeesti, ja Tongji olis yks joka normaalisti vie kolmesta neljään vuotta prosessia, ni me ollaan jo toisen vuoden lopulla, tuplatutkinnot alkaa ja muuta, et se on edenny hirmu nopeesti et se on oikeestaan vois ruveta sanoo et se ehkä ois jo ensimmäinen. Ja kuitenki Aallon iso tavote on saada aktiivisia kansainvälisiä partnerisuhteita, ni se et ne on ikään ku DeFan kautta käynnistyny näinki nopeesti ja jouhevasti se koko prosessi, ni sillä ne on hoksannu meijät ehkä annettavaa tälle, muilleki näille prosesseille. (ADF staff member)

However, being regarded as a showcase was perceived as sometimes having also negative impact on the credibility of ADF as an educational environment in the eyes of others. As noted by one interviewee;

Ei siinä alussa varmaan ollu muuta kun, et must tuntu että se et mä siirsin kurssin tänne, niin moni tykkäs, moni kollega. En mä nyt tiedä oliks siit ollu keskustelua, mut ne ilmasi sillä lailla että "eihän siellä voi oikeesti opettaa,

et miten sä voit mennä sinne opettaa". Mut se oli 2009, et nythän on muuttunu ihan hirveesti. Mut sillon tykättiin että tää on enemmän sellanen paikka, missä opetetaan PDP-kurssia ja sit täällä on yrityksiä ja sit tää on semmonen Aallon näyteikkuna, et se asenne oli että "eihän sinne nyt voi mennä opettamaan, et voithan sä viedä ne opiskelijat kattomaan". (teacher)

In addition to acting as a showcase and building strategic partnerships, ADF was described to change the ways of working within the university. This was done via creating and promoting a new kind of approach to teaching to both students and teachers, as well as working as a catalyst for change initiated by the aspirations of individuals (n=14). The role of the ADF as such a platform within the Aalto University was perceived as important, and ADF was described as a multidisciplinary hub bringing together different people, operators, and perspectives (n=10).

Design Factory on yks, pedagogisena mallina semmonen sissiliike siellä edustaa, niin ku mä sanoin aikasemmin, semmosta taikkilaista kulttuuria nii että, Design Factory on ensimmäinen semmonen joka voi yrittää edistää sen tyyppisiä.. arvoja ja lähestymistapoja. Tämmönen cooperation ja.. yhdessä tekemällä, testaamalla, vuorovaikutteisesti tutkimalla, selvittämällä, lähestyy niitä. Sillä lailla tekemällä, tarjoamalla niitä malleja et riittääkö sillä voimaa uudistaa sitä. (teacher)

Finally, ADF was seen to have stabilized in relation to its position in Aalto, which was described to have both positive and negative implications. On one hand, it was felt that the credibility and brand value of ADF had increased, while, on the other hand, there were some concerns of becoming stagnant and falling into routinized action. Some interviewees felt that the drive and spirit of doing had somewhat diminished (n=5).

Design Factory is only a project, so we need to lead the way, we need to literally always be in the front line. Otherwise, if we start moving to the comfort zone, we won't exist anymore, it will fall flatten, it will end there, there is no other possibility. (ADF staff member)

Meil oli enemmän opiskelijoita, täällä talossa sisällä käytävillä, rakentamassa, tekemässä, PDP:läiset näky täällä paremmin. Mä oon aina huolissaan, jos.. Siis yliopistolla on vain kaksi merkitystä, tai sil on kolme, kolmas on yhteiskunnallinen vaikuttaminen, mut se on paskapuhetta. Sil on vaan kaks merkitystä: opettaminen ja tutkiminen. Ja kaiken tekemisen meillä pitää kumminkin näihin, ankkuroitua jompaankumpaan. Ja ensimmäisenä vuonna mä näin esimerkiks PDP:läisiä tosi paljon täällä, kolmantena vuonna mä en nähny niitä ollenkaan, niin mun mielestä se on

huono merkki. IDPM tuli sisään tänne vuosi sitten, ei niitä näy täällä. Kyllä niitä näkyy, mut siis ne ei oo osa tätä yhteisöö. (teacher)

Unclarities in the overall role and purpose of ADF

Some interviewees reported noticing that overall purpose and role of the ADF within Aalto has been unclear to different stakeholders within Aalto. The understanding of what can be done at ADF and what the focus is (e.g. companies vs. teaching, is ADF just a showcase for promoting Aalto) were reported as being limited. Some experiences related outsiders questioning whether any "real work" was done at ADF, and the word "design" having some misleading or negative connotations for some people. This was, however, seen as having improved significantly from the early phases of the ADF.

mielenkiintonen asia taas ulkopuolisena tarkkailijana et, tää organisatorisesti ja ulospäin, tääl on niin selkeesti neljä toimijaa: tääl on, tää Factory itte, sitten tääl on se (-)in [1:01:46.2], ACE, tää Aalto Center of [for] Entrepreneurship, ja sitten on ES, ja sitten on VG. Et en mä tiedä miten se käytännös, ku mä nyt en kuulu, näistä mihinkään, mut ulkopuoliselta, näyttää ihmeelliseltä että miten nää neljä kaikki, voi ylläpitää niin, selkeesti, erillistä, ja tavallaan sellasta profiilia kuin niitä muita ei olisi. Et jos sä katot mitä tahansa näit.. no ES ja VG ne ny vähän, ne edes jollain tavalla vähän viittaa ristiin. Mut mun mielestä on ällistyttävää et miten näin pienel alueella voi olla samoissa tiloissa, neljä toimijaa jotka näyttää olevan, ulkopuolisen silmissä toisistaan täysin riippumattomia. Lähestulkoon, kun ne ei tietäisi. Ainakaan viestintintä- ja markkinointimielessä kuin eivät tietäisi toistensa, olemassa olosta. Plus sitten kaikki nää, pienemmät jutut. Et se et, vaikka mäkin nyt täällä jollain tasolla pyörin, niin.. esimerkiks, tiedänks mä et mitkä firmat tääl on? Tiedänks mä mitkä on ne konkreettiset vaikka tutkimusprojektit, mitä tääl vaikka, ACE ehkä tekee? (No, I didn't). (teacher)

No joo jollain tasolla, siis tää nyt on.. Sillon ku Design Factory anto mulle mielikuvan siitä et tääl on designia. Mut jotenki täällähän on poikkeavat, sillee mielenkiintoset työtilat ja siis semmonen, mut et siin mielessä mun mielestä tää ei oo ihan, tää on enemmän, siis mun mielestä tää on enemmän sellanen paikka että tää, toi design-sana itse asiassa ei ihan hirveen hyvin sovi tähän paikkaan. Mut siis silleen että tää on enemmän, tää saattaa kuulostaa inhottavalta mut, et insinööreille ja kauppakorkeelaisille tai tämmösille bisnesihmisille tää voi olla semmonen enemmän, et he jotka haluaa olla jollain tavalla tekemisissä tän designin ja tälläsen kanssa. (ADF staff member)

Observed interaction at the Kafis

In addition to the perspectives gained through the ADF community member interviews, data on interaction was also collected from observations at the ADF Kafis, the cafeteria designed to spark and enhance interaction, and often called the heart of the building. Data was collected during times when no additional events, such as the Tuesday morning breakfast or celebrations were taking place. During the observation week, the Kafis was passed through 333 times (see Table 7) and 258 conversations were initiated (see Table 8).

Key points of the observed interaction at the Kafis:

- Most of the interaction was a result of self-initiation, which underlines the importance of high degree of initiative for working at the ADF

- The majority of the entrances to Kafis resulted in no interaction, implying that there is still a lot of potential regarding the actualization of collaboration

- Most of the initiated conversations involved ADF staff members, emphasizing the important role that ADF staff currently has in familiarizing the people with the community and the ropes

Interaction resulting from entrances to the Kafis

Out of the 333 times that people came by to grab a cup of coffee or walked through the Kafis, in 238 cases (71%) there was no interaction observed, i.e. the people in the Kafis and the person entering did not acknowledge each other in any way (see Table 7). Of the 94 cases where some form of greetings was exchanged, the person entering the room initiated the interaction 68% of the time. Thus the observations highlight the self-initiated nature of action at ADF, providing support for the 52 experiences of self-initiated activities reported in the interviews. Indeed, a number of ADF community members described that a high degree of initiative was necessary for working at the ADF environment – the community was perceived as responsive, but one must take the first step.

Table 7. Amount of entrances to the ADF Kafis and the resulting interaction initiation

| | Resulting in no interaction | Resulting in exchanged greetings | | | | Total |
		From the initiative of the person entering	From the initiative of someone already at the Kafis	Unable to determine the source of initiative	Total	
Amount of entrances to the Kafis	238	64	19	12	94	333

On the other hand, the fact that the majority of entrances resulted in no interaction does support the concerns and difficulties reported in some of the interviews regarding the actualization of the collaboration potential. Gaining information on who resides at the ADF and for what reasons was described as being depended on being at the right place at the right time, and having someone to facilitate the entrance to the community. The observation data does not reveal why the 238 entrances did not lead to any interaction, but the interviews suggest that at least a lack of familiarity with the people present and the limited time available had an impact. Furthermore, only 3 out of the 19 cases where someone was already present at the ADF Kafis, made the initiative of greeting the person entering who had no ADF staff involvement. This provides further support for the current degree of dependency on staff facilitation for initiating interaction between other ADF community members. The same tendency was revealed in the conversations that were initiated at the Kafis during the observation week, as only 13 % of all conversation initiations had no ADF staff members involved. Many interviewees further described the ADF staff having a crucial role in familiarizing them with the community.

Initiating conversations at the Kafis

The 258 conversations that were initiated during the observation week were roughly divided equally between those being work-related and those regarding other interests (see Table 8). The high amount of non-work related conversation initiatives provide further support for the descriptions of work and leisure time blending together, forming richer relationships, and a familiar atmosphere provided by the ADF community interviews. However, the also observers noted that in some cases the conversations started with non-work related topics but led to work-related discussion later on.

Half of the conversation initiations were questions, which can be compared to the high amount of interviews reporting a low threshold for

asking help and approaching ADF community members. The vast majority of questions were directed to someone in particular, but there were also 19 cases where the general crowd present at the Kafis was approached. Of course, not all help-giving situations are initiated with a question, as the ADF community interviewees also described some examples where help had been proactively offered to them after they had discussed the challenges they were facing.

Out of the 33 people who appeared to enter the Kafis searching for someone or something, the vast majority (79%) asked work-related questions from a specific person present at the Kafis. However, at least 74 of the initiated conversations seem to have been unplanned as they were started by people passing through the Kafis, seemingly on their way to somewhere else. Indeed, many of the ADF community interviewees described the potential for ad hoc interaction that the ADF provided. The observed interaction initiations tended to be targeted to someone in specific (72%), complementing the interviewees' descriptions that physical presence lowered the threshold for interaction. For example, several interviewees explicitly highlighted the role of having a single location for getting a coffee. As one interviewee puts it:

Täällä kaikki, kertakaikkiaan vaan, näitten tilajärjestelyittenki takia joutuu vaan kerta kaikkiaan tekemisiin toistensa kanssa, tossa kahvikoneella, joka on aika semmonen klassinen kolarointipaikka eli kohtaamispaikka.

In addition, also those who were spending more time at the Kafis, for example working at the kitchen table, having lunch, or waiting for someone, tended to initiate targeted interaction with those people that were close by (120 out of 148 conversation initiations were targeted). These conversations were somewhat more likely to be related to free time (65%) rather than work issues.

Table 8. The amount and type of conversation initiations

Conversation initiations	No specific target appointed		Directed to someone in specific		Total
	Question	Comment	Question	Comment	
Work-related	9	5	63	43	120
Other	10	28	43	57	138
Total	19	33	106	100	258

In general, the observations largely concur with the community member interviews, providing further support for many of the ADF interaction characteristics described in the interviews. While the amount of

interaction observed during just one week, and excluding all additional events taking place at the Kafis, clearly illustrates that the environment is conductive of interaction, the results also suggest that untapped potential remains in creating and seizing interaction opportunities at the ADF.

ADF in the eyes of its community members

ADF in the eyes of its community members

The present report sheds light on how the Aalto University Design Factory is perceived by the members of its community. Many of the characteristics depicted by the interviewees were repeated in the interviews across different community member groups regarding the ways of interaction, typical characteristics of action, ways of supporting the action, and typical characteristics of personal work and the ADF entity itself – a summary of these features can be found in Table X. In addition to helping us understand what the Aalto University Design Factory itself in essence is and what are the possible directions for its further development in Aalto, the results can provide insight into attempts to spread such environments and ways of working in other contexts.

The scale of ADF in terms of the number of activities and users has grown significantly in the past three years. As a continuously developing platform, change is part of normal state of affairs of the ADF. In this study, numerous ADF community members reported conscious developments efforts targeted at developing the Design Factory as a physical and mental environment. The interviewees also recognized the yet unrealized potential for benefits from the diversity of the ADF community members and activities in the form of interdisciplinary collaboration. Further developing ADF to take advantage of the growing scale and unrealized potential is a continuous challenge.

In addition, as not every relevant and interested activity and actor can be squeezed into the limited 3200 m^2 premises available at the ADF, there have already been several efforts to spread the ADF platform or ways of working further. Within the Aalto University, the attempts have mainly revolved around two principles: a catch-and-release system of activities, and developing similar micro-environments across the Aalto campus. The catch-and-release type of efforts are based on the idea that people and activities come to work at the ADF community and its activities, and after this immersion return to catalyze development in their own departments. For example, a course might be organized a couple of times at the ADF premises, but the idea is to continue experimenting with new methods outside the walls of the ADF. The second type of attempts, developing micro-environments across the campus, has involved planning similar flexible spatial arrangements on a smaller scale. On an international level, in addition to the numerous visitors benchmarking and seeking inspiration from the ADF, two Design Factories have been created abroad: one in Shanghai, China in collaboration with the Tongji University, and another in Melbourne,

Australia by Swinburne University of Technology. These Design Factories have and continue to utilize varying means to develop their version of the co-creation platform to suit their local context.

In the face of these development and expansion efforts, and the opportunities and challenges they bring, reflecting what and how the Aalto University Design Factory has worked in its first three years is a valuable exercise. Based on the ADF community members' experiences, there are a few key considerations to take into account both in developing the ADF platform further and in implementing similar solutions in other contexts.

Table 9. Typical characteristics of the ADF as perceived by its community members

Class	Category	No. of segments
Typical characteristics of interaction within the ADF community	Potential for collaboration	105
	Tight community as a home base	95
	Open interaction	53
	Diversity of the ADF community members	48
	Importance of integrating with the ADF community	41
	Importance of the atmosphere	35
	Total	*377*
Typical characteristics of action at the ADF	Informal	117
	Network-based	58
	Self-initiated	52
	Open sharing	32
	Fast-paced	31
	Total	*290*
Typical characteristics of support received from the ADF community	Inspiration and enthusiasm from the community	69
	Receiving help from other community members	53
	Support for experimentation	43
	Building courage	42
	Total	*207*
Typical characteristics of the work of ADF community members	Motivating work	42
	Learning in one's work	36
	High degree of involvement	26
	Strain from work	27
	Finding one's niche	23
	Freedom in work	21
	Total	*175*
Typical characteristics of the structures of the ADF entity	Flexible and non-bureaucratic arrangements	41
	The need for basic structures	47
	Unclarities in job divisions, activities and residents of ADF	43
	Total	*131*
Typical characteristics of the physical manifestation of the ADF entity	Spaces facilitate a variety of activities and learning	68
	The importance of having a home base	13
	The balance between interaction and individual working in solitude	16
	Physical location of ADF	9
	Unclarities regarding the facilities	33
	Total	*139*
Typical characteristics of the role of the ADF entity in Aalto	ADF initiating and promoting change within the university	58
	Unclarity about the role and purpose of ADF	18
	Total	*76*

Taking the smalls things into consideration in conveying a development-promoting message

Rather that providing systematic support structures or procedures for development work, the main effect of the ADF seems to have been created through conveying a message that taking development actions is desirable. Minimizing structural and physical obstacles by allowing flexibility and making tools available, and lowering the mental threshold by providing an encouraging and inspiring atmosphere, have been important success factors. It is especially noteworthy that rather than the ingenuity of any single, basic solution or practice utilized at the ADF, the success of conveying a development-encouraging message seems to have in many cases depended on the small execution details of the characteristics.

In terms of interaction, even though the community members perceived that the ADF platform and community had provided significant help in their development work, the support has mainly been positive reactions and small acts of help in planning and executing development work, not requiring significant investments of time and resources in any single case. The enthusiasms displayed by the ADF staff both in their own work and towards other community members, offering encouraging and inviting words to newcomers, and the willingness to help in small practical issues of finding and arranging tools and people, as well as making introductions between community members, were perceived as the foundation of the good atmosphere.

In terms of the physical platform, general flexibility has been perceived as important in avoiding the establishment of any obstacles for development, but again the small touches in the spaces have been crucial for conveying that development actions are desired. The unpolished feel and mobile furniture have suggested that it is okay to modify the environments, the lack of speakers' podiums and desk rows have encourage group work and interaction between the teachers and students over more traditional styles of lecturing, and the presence of prototyping and visualization tools have served as reminders for experimenting. Thus creating a polished environment is not necessarily desirable, as so far the signs of past usage have encouraged doing rather than just talking in the environment. The informal, cozy and colorful appearance of the spaces was praised by the community members.

While physical proximity was perceived as highly beneficial in increasing development collaboration between different community members, the distance was measured in meters rather than rooms – just being located in the same building does not seem to have much

effect without the possibility to interact with other people in a shared open space. Rather, examples of co-creation had been initiated after overhearing people talk and catching up with different members of the community while getting coffee, eating breakfast, cooking lunch, taking part in the same events, or working on an adjacent desk.

Indeed, the basic principles behind the ADF platform are not complex or dramatically new. Rather conveying and supporting these principles on all levels is key to supporting passion-based co-creation. The community interviews remind that the impact of small things should not be underestimated, and that enhancing development does not necessarily require much resources. The way people are approached can make all the difference, and spatial and structural solutions can make it either easier or more difficult. The form and impact of the details of adopting an ADF-style platform in a particular context and of any new introduction to the current environment warrant careful adjustment.

Creating a critical mass to sustain promoting development

When ADF opened its doors in 2008, a number of development-hungry staff and other community members immediately established their home base at the Factory. These active developers have attracted other like-minded (or perhaps rather like-doing) people to join, and a significant part of the development-promoting message has been conveyed via the examples set by other community members and the general climate of doing. The interviewed community members described enthusiasm as contagious and being inspired and encouraged by the presence of positive examples of events, practices, and individuals at the ADF platform. The visibility of the development results gained in both own projects and those of others seem to further breed more development efforts, motivating and providing new ideas for experimentation.

The spirit of doing and fast-paced multitude of development activities occurring at the ADF was also the major reason expressed by most research groups and companies for joining the ADF. Without the quickly developing projects of other community members, the platform loses much of its appeal. Thus establishing the initial, active group and making them and their work visible can be a key consideration in adaptation and expansion efforts.

In addition to making the community members more visible and accessible to each other, physical proximity and sharing the same home base was a described as the main source of information. Due to this, having a sufficiently large amount of permanent, accessible

connectors seemed to be crucial: ADF staff members and other active, daily present community members, were described to have an important role in facilitating interaction between community members by making introductions between people and providing information on what was going on in the community. The significance of a few familiar faces for lowering the threshold of interaction should be noted. However, while a too high turnover can have a negative impact, so can a too low one, as the introduction of new members can help to sustain high levels of enthusiasm and ensure that the community does not become too closed or set in its ways.

In general, the results suggest partly a self-fulfilling prophesy or cycle of positive reinforcement. After a critical mass of development has been gathered together, more developers are attracted, and after new ways of working are initially demonstrated widely enough in the community, people not only start to expect such behavior but act accordingly when at the ADF. Creating and sustaining the critical amount and percentage of the mass needed to promote development becomes a key task in developing and adopting the platform.

Actualizing development collaboration potential

Co-creation by people from different backgrounds, professions and disciplines has a huge potential for development, and the heterogeneity of the ADF environment and community was valued by ADF members. Many had been attracted to the community due to its interesting and active community members and the results they had displayed in developing their own work. Indeed, ADF had encouraged development work, and all of the interviewed community members described developments that they had conducted in their own work, whether in teaching, research, or developing products, services, facilities or practices.

However, there seemed to remain plenty of untapped potential to consider in the future. Examples of developments co-created by representatives from different community member groups were relatively scarce. In addition, most of the described interaction seem to occur either between the ADF staff members and other community members, or was initiated or facilitated by the staff members. In these terms, interaction was not self-reliant, but depended on the efforts of a core group of facilitators to a large degree. Furthermore, interaction clearly occurred between people rather than organizations, and familiarity with the names and faces of community members was a significant factor in leading to shared development suggestions and ideas. Additionally, personal contacts had provided an important initial push for participation in the activities, and feeling integrated with the

community depended on having regular contact with other members. Showcasing the interesting activities taking place and people working at the ADF, and making information readily available within the environment itself warrant ongoing development efforts.

Especially as the community grows both in size and variance (due to turnover and occasional visitors), creating and maintaining person-to-person interaction and a sense of a shared community is not necessarily an easy task. In order for co-creation to occur, there seem to be three potential steps to overcome. First, one needs to know who and what parties belong to the community, i.e. who else is acting in the same environment. Second, interaction is more likely if one actually is familiar with the other community members, knowing the names, faces and preferably activities of the community members, rather than merely knowing the parties they represent. Finally, in order for co-creation to occur, a common target and means of collaboration needs to be figured out. Any of these three steps can be facilitated and addressed in a variety of ways, and it is worth considering where the bottlenecks currently reside.

The challenge of gaining full benefit from the surrounding community is one that is recognized by the community members themselves, and any possible shortcoming in its realization do not seem to hinge on a lack of willingness. In general, all community members perceived others as interesting actors and saw that increased interaction and co-creation could benefit their own work. However, good intentions were not always translated into action, and more support might be desirable. In fact, out of the 39 explicit ADF improvement suggestions that were made by the community members during the interviews, 24 were related to the means of sharing information, getting to know the community and utilizing the community members' talent and input. While the development of effective and efficient means of accomplishing passion based co-creation is ongoing, the results presented in this report suggest that creating informal activities with a low threshold for participation, providing small acts of help in the very initial phases of involvement, offering possibilities for working in close physical proximity to different community members, displaying enthusiasm, and making activities visible – in terms of results, but equally or perhaps even more importantly in terms of the process – can be key elements in successfully pursuing such a goal.

The 10 commandments of ADF ways of working

The 10 commandments of ADF ways of working

In the following, "10 commandments of ADF ways of working" are provided. These are intended as "rule of thumb" guidelines intended to support creating and sustaining an environment reflecting some of the most important positive aspects of the Design Factory community.

Inspire by example.
In order to develop the surrounding environment, lack of bureaucracy as well as providing a high degree of flexibility and an experience of being empowered to act differently in one's daily work is critical. Finding role models in the community and intending to follow in the footsteps of other actors and activities promotes enthusiasm for change.

Attract people with helpful and proactive attitudes.
The staff members and their attitudes have an important role in keeping up the can-do spirit as well as the encouraging, welcoming, warm and daring atmosphere. In addition to the right attitude, the active role of staff members in introducing new users to the wider community is critical. Participation and development are often initiated due to the information and requests originating from the ADF community members' personal contacts. The presumption about the open atmosphere, and encountering people within the community with an open attitude and sharing their thoughts and ideas, effectively promotes adopting a similar attitude.

Keep the community tight, but ensure open knowledge sharing.
Being able to use the platform actively in one's own work and participate in activities organized by others is critical for entering the community, as well as for getting new information, potential contacts and feedback. Avoid closed inner circles and individualistic community members. Open sharing of ideas and knowledge has numerous positive outcomes, such as building contacts, increasing knowledge, having opportunities to reflect on and test one's own ideas, and coming up with new ideas.

Keep things informal, avoid hierarchies and bureaucracy.
Informal activities promote open sharing of ideas and knowledge amongst the community members. Informal nature of actions makes working more relaxed and enjoyable. In addition, informal channels of

working and communicating promote self-initiated fast pace development. Non-hierarchical and informal interaction and cooperation makes people more easily approachable resulting in advanced team building and spirit.

Provide encouragement and practical support for development.

Development work can be greatly supported by reactions of enthusiasm, encouragement and helpfulness that other community members have, as well as the small acts of practical help in planning and execution. Received encouragement and positive initial experiences gained in acting in new tasks at the community results in increased courage, especially in the context of interaction.

Translate ideas into action fast.

Promoting fast-paced development and change, speedy interaction and decision-making, as well as demonstrating results quickly generate interest and enhance the role and reputation of the activities and actors of the community. On courses, frequent deadlines have a positive effect on motivation due making progress and completed steps concrete, as well as diminishing excess dwelling.

Be proactive, take initiative.

In a continuously developing, nonhierarchical platform, be prepared for solving unclarities related to structures, facilities, and roles. Rather than providing ready-made solutions, the community offers ideas, opportunities and stimuli. Thus a high degree of initiative is necessary for successful performance.

Allow freedom in work.

Having a high degree of freedom in defining and developing the content of one's work is compatible with accommodating for changing development needs as well as personal learning, making work more meaningful.

Provide a physical home base.

Having an access to a common, flexible physical space where the students can not only work together, but also engage in more informal activities such as cooking together enhances interaction, team spirit and feeling of togetherness. From the perspective of the teaching personnel, having a physical home base at ADF for a course provides an opportunity to better showcase the course content and results, and offer support from a pedagogical perspective.

Favor showcases, avoid showrooms.

The flexible and unpolished nature of the spaces has an important role in communicating the freedom to take action and act outside the norm.

DFRT 2011