



creating creativity

*'a study into architectural means to stimulate
the creative mind and enhance innovation'*

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Additional documents

References on Creative Work Environments

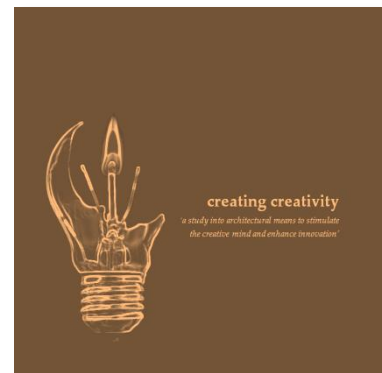
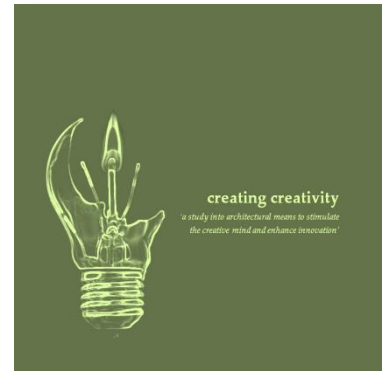
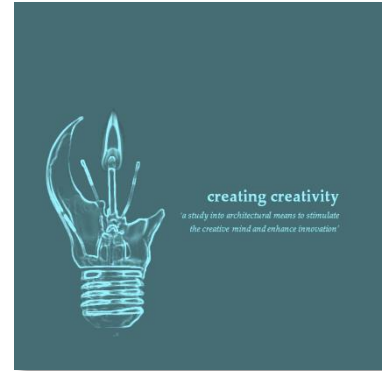
Details and imagery of 40 international buildings designed to enhance and/or facilitate creativity.

Location Analysis

Extensive research on the London and in specific the Southbank area.

Reflection and Presentation

Evaluation on the full process regarding research and design. Survey of architectural products.



Over time everything will be a coffee house

[Abstract]

People are found everywhere working on their laptops; in parks and public buildings, but mostly in coffee houses. It is a place which many prefer above a regular office. Not only to become more productive, but also to become creative. Surroundings are not seen as a distraction, but used as inspiration. Even when full focus is needed, light sound and movement of others is not seen as an annoying, the brain filters and uses everything to a satisfying amount.

Scientists show that people can enter a state of mind, in which everything is subordinated to one specific goal. A personal fascination that enables them to work twenty hours a day, without any problem while experiencing great pleasure. It is about tasks that lie so close to personal interests, that urge and energy are infinite. The brain functions in a happy and non-restraint way, something children experience much more often than adults. Research shows that the skill of creativity is directly linked to the ability of acting like a child. It is about disabling the personal 'inner critic', the part in our brain that stops us from acting out of the ordinary.

Over the past years, many buildings have been design to bring creativity into the office. Colors, homely furniture and natural elements, to make us more relaxed. Sports fields, unusual art and even slides, to stimulate us to act more like a child. And large open spaces, daylight and flexible diverse work spaces, to make us feel more free. But where these are common tools used within building designs towards creativity, they all look very dissimilar.

The most obvious difference between the coffee house and the 'creative office', is the presence of facilities. Meeting- and conference rooms, machinery and tools, copy- and print service, fablabs and so on, are sections found in actual work environments. ICT-help, finance- and legal support, and a large network of professionals are other important qualities, which are missing at a coffee house.

Where the surrounding of the location is used by many as a 'hidden office' full of creative minds, a large coffee house in urban setting, the design is based on adding the missing facilities becoming part of the existing. Many qualities named and visualized by scientists and architects are already present at the location. The actual design is based on the user and consists of a rather simple design in which architecture is made to a mean, creating a place where something can happen. It is about challenging to do something with the given space, using the broad range of facilities. The endless potential to make use of the openness provokes. A building which will get its identity from the user, an always changing identity representing creativity.

I was at work at the Faculty when it suddenly started snowing. Real big snowflakes fell out of the sky for hours. Soon everything was covered in white; the many trees, campus streets and old faculty buildings around us. People stopped working to look out the window, attracted by the beautiful view, and just stood there. Not all at the same time, not for more than a few minutes, but everyone did at some point, including myself. Returning to their laptops students and staff started working again, with a clear mind and fresh ideas to maybe solve the problem or challenge that has been on their mind for weeks.

Unplanned meetings in undesigned spaces

[Preface]

Unexpected little events can have a great influence on us. A combination of specific circumstances and the sudden occurrence can make the mind wonder away. The previous example describes how the snow affects people in a work environment, but more often these events strike when no computers or work stations are around. Where it still will inspire those who are exposed to it, most ideas that might come from this will fade away just as fast as they have arisen.

A visit at a San Francisco Starbucks changed my believes in what architects can do when designing from the users perspective. I was surrounded by people working on their laptops, reading study books, having brainstorm and others just letting their mind wonder away being inspired by their surroundings. It inspired me to try and understand the coffee house as typology, a gathering place where people would go for so much more than coffee. While analyzing these individuals in their seemingly natural habitat, I instantly started to become one of them. What followed was a series of rather pleasant conversations with some of the most diverse and interesting human beings I ever met, at maybe their best moment of the day; creativity in progress. If we can realize this on a small scale (one room), why wouldn't it be possible on the large scale (a building or even bigger)?

In this thesis creativity is analyzed, with the aim to understand how architectural means can stimulate it within the work environment and thereby enhancing innovation. Creativity is named the number one skill for the 21st century [Psychology Today 2011] and the most crucial factor to success in business [IMDB 2010]. If designers would know what brings creativity out in people and how architecture can be used to facilitate the process around it, we might be able to generate guide lines encouraging the creative mind, bringing creativity to the office.

The combination of circumstances that can lead towards the experience of a creative moment can be very divers, is different for each person and depends on each particular case. The aim is to generate guide lines for enhancing creativity, translate them to architectural means and implement them within the built environment. This is described on the basis of three different perspectives, attempting to give a most complete understanding of creativity and the visualization of it within our daily life.

Firstly creativity is identified from a personal point of view [chapter 1]. What do people say about this 'ability' and when does it occur? The goal is to understand where and when we experience inspiring thoughts and what process revolves around creativity. Why do people become creative and even productive outside of their regular work space and what is the influence of architecture in all this?

To really understand how to design for creativity, an intensive study on the topic is needed from a scientific approach [chapter 2]. How does the human brain behave when becoming creative, which factors can stimulate or even manipulate this and how is it possible that children are proven to be more successful at generating creative solutions than adults? How important are the people, attributes and facilities around us, does the location matter or is it all between the ears?

Picture a pink elephant on roller blades cruising through downtown New York while having a cocktail drink. Trying to imagine this surreal happening (or even being part of it), your brain is forced to let in more strange thoughts, shutting down inner criticism for a minute. This opens up the opportunity to come up with other unusual events, weird concepts or new ideas; calling out creativity.

Thirdly the focus moves to the built environment [chapter 3], analyzing designed creative work spaces worldwide. Forty building designs are discussed and compared in search for similarities and differences. What do we use today to facilitate and enhance creativity, when did it started and what changed over time? The systematical mapping of features and qualities of each individual project and cross-referencing the results, leads to a series of design tools.

To conclude all outcomes are gathered from what people say, science knows and architecture does today linked to the process of creativity and how to implement this in the work environment. It is the interdisciplinary way of working that will lead to the result of a concept that can be translated into a building meeting the needs of the creative mind.

Acknowledgements

The topic of creativity has affinity with many fields of interests, and so does architecture. Both are very close and familiar to all of us, in an individual and sometimes even intimate way. This led to a series of great conversations in which friends, family, colleagues and strangers shared their thoughts and inspired me during the process of writing and designing. All comments and insights, both requested and unrequested, have been of inexpressible value towards the final result. Special thanks is reserved for my mentors who accompanied me in the sometimes complicated mixture of research, design and external factors, also when this went way beyond architecture. A team on which I could rely for advise in a process led by variables and challenges.

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creativity

Architecture for a new mentality; Introducing the topic

We all have experienced moments of creativity, but where and when does it occur? It is a 'skill' that some seem to be able to use and access more easily than others and not rarely is linked to the artistic fields of work. Is there really that much difference in people, or could it also have something to do with their surroundings and mentality? Today the business world is opening up for these 'creatives' too, CEO's recognize the value and start hiring employees especially for increasing innovation. But how can we stimulate inspiring thoughts in the work environment and what is or could be the role of architecture in all this?

- 1.1 What is creativity? xx*
- 1.2 Why work doesn't happen at work xx*
- 1.3 From theory to building xx*

1.1.1 A hot shower, forest walk or car drive

We design places to meet all our needs; housing, universities, museums, shops, and so on. But then there is work, which could obviously be easiest linked to office buildings. Interesting enough though, for some reason we rather seem to go anyplace else to become productive, or even better to become creative; why is this?

Let's first have a look at a simple question to back up this statement: *Where do you really want to go when you need to get something done and to generate fresh thoughts?* Think about this, many answers might come up in your head, but is any of them 'at work'?

Typologies have been 'newly discovered' and creative places arise on every street corner, changing what we use to know about facilitating creativity. The coffee house is reinvented by Starbucks, the regular office by Google and old buildings are more and more redesigned as communal areas for social hubs. It seems to be something from the recent years, but when did this really start?

It is the Starbucks-principle what comes closest to many of us, with uncountable locations around the world and a place where people go for more than just a coffee. It is 'work' what they bring with them, laptops, papers, books. Many stay there for hours, being within the Starbucks community, different people, different talks, different languages. The sound of grinded coffee beans in the background and a staff member calling out first names that go with the orders of other costumers. Much movement, unexpected sounds and other factors that you cannot control, but somehow a good place to work, to become creative. It is not 'at work' where people come up with their best ideas, it seems to be any place outside of work. But when Starbucks can provide the space, can employers do that too?

This brings us to Google and the social hubs. Those are creative work environments that provide the right combination and mixture of work facilities and the informal lay-out of Starbucks. Before these places were designed, mostly coffee corners, water coolers and hallways led to creativity and interaction. This often undersigned areas can be seen as a key-factor within successful buildings towards creativity: 'The wasted space of any building is more important than that which is used because it provides space for the subconscious.' [Paul Rudolph – 1993]. It is about inspiration, creativity and innovation; where do people become inspired, how to stimulate this thoughts towards new ideas and knowing what to do to implement it in society.

In recent years people like Steve Jobs developed the combination of 'work' and 'innovation' to a new level. In an interview [Business Week - 2004] he states the following: 'Innovation comes from people meeting up in the hallways or calling each other at 10:30 at night with a new idea, or because they realized something that shoots holes in how we've been thinking about a problem. It's ad hoc meetings of six people called by someone who thinks he has figured out the coolest new thing ever and who wants to know what other people think of his idea.'

This might be less about the space itself, but the challenge to provide this by using architectural means, is what creates the creative work environment; the hallway as building. The informality of the garage where Facebook ones started as working space, combined with all needed facilities it has nowadays and accessible for everyone.

We all have our moments of creativity and are exposed to work environments daily. But what do both mean and how can we combine the best of two worlds by merging goals and qualities of both, creating a place where new ideas are born with the facilities to make them happen. It is a thought that has been with us for many decades and the architecture trying to serve this purpose has been around for many years too. More than ever it is a hot topic, but where lie the roots, how much did it change and where does it go from here?

1.1.2 Something 'new'

'Creativity is doing new things with old things.' - Bob Sutton (2004) - Professor at Stanford University

A very brief but clear statement starting to explain that very familiar, somehow mysterious word. It is a rather broad description though, but gives a first direction towards the complicated meaning of the term creativity. Bob Sutton has been studying creativity for many years and managed to explain this research in a rather simple way using short statements and many examples, making visual what he meant. He describes that it can be accelerated rapidly by looking at creativity as an import/export business, rephrasing it to fast creativity. But if we need 'old things' to come to 'new things', we should better have many of them to increase our chances. This can be done by reading, observing, listening, travelling, talking, wondering, and so on, to summarize; experiencing.

In Latin the word 'creatio' was originally applied solely to deeds of god. Only later, in the renaissance period – the word creativity became used to describing human accomplishments (Martina Skender – graphic designer). She then gives a definition which seems to build on Mr. Sutton's: Creativity is a mental and social process involving the discovery of new ideas or concepts, using existing facts and principles. She adds that needed are autonomy to explore and the flexibility to step outside the box. This connects in more ways to what we know about creativity. The phrase 'outside the box' has been around for some time and links almost always directly to a call out for creativity. Brainstorming, lateral thinking and problem reversal are well known principles to trick the mind in becoming more creative, finding solutions through an indirect approach.

- Applied imagination (Alex Osborn – Brainstorming)
- Disrupt conventional patterns adopted by the brain (Edward de Bono – Lateral Thinking)
- Stating the problem in reverse (Charles Thomson – Problem Reversal).

But why do we need to trick the mind and can anyone fall for it? A question that can also be formulated as: Is every person creative?

Rene Magritte (1928), a Belgium surrealist artist painted a smoking pipe flanked with the text: 'This is not a pipe.' It has send many postmodern thinkers who study linguistic theory into intellectual genuflection, but Margritte meant the image to be taken very literally and theoretical. Since it doesn't satisfy emotionally it cannot be a pipe, it is a painting.



[A1] painting of a smoking pipe – Rene Magritte

1.1.3 Definitions from different fields and perspectives

Creativity is very personal and just as familiar as hard to define. Discovery Channel collected brief interviews asking prominent individuals - working in very diverse fields of expertise - that one question: What is creativity? Looking at each of them and combining the answers, gives a rather quick overview of a possible more defined explanation of the word creativity - (freely) summarized in one short sentence.

Deepak Chopra - physician

Using known information in a deep part of your unconscious and going from here to there without using the space in between.

Michael Weber - musician

Not find THE answer, but find AN answer, enriching your body of knowledge, relationships and experiences that would not have existed. Reinforce your own idea with the solutions of others.

Thomas Keller - chef

Manipulated what is given to us.

Jaron Lavier - computer scientist

The moment you define creativity you have it (laughing).. it has to come from inside of you, at some point you have to relax, it has to flow.

John Seely Brown – research into organizations

Imagination is taking the strange and making it familiar, creativity is taking the familiar and making it strange. Today's kids are very good at doing that, due to very good tools.

John Perry Barlow -poet

Opening up the opportunity space to renew your perception of reality and look for the unknown obvious.

Doreen Lorenzo

Creativity is form, shape and meaning. Step outside of what is the norm and generate ideas and concepts that never been done before.

Don Baer - psychologist

Seeing things as they aren't typically seen and use different ways of approach to improve them. Innovations is sparks of creativity into practical solutions, the human ingredient; Steve Jobs had both.

Brenda Way – artistic director

Generate something from nothing.

David Kelley – professor

It is natural, everybody has creativity when you are not blocked in any way. Saying you're not creative is a strategy of not get critiqued.

Bob Metcalfe – electrical engineer

Looking at the same thing other people look at and seeing something new, usually associating two things by breaking the rules to solve the problem.

Ralph Osterhout - designer

Curiosity is needed to become creative. It is the simple practical integration of known concepts wanting to find solutions.

Mitch Resnick – MIT media lab

Ability is to come up with new ways of approaching new things of that particular person.

Benjamin Zander - conductor

Looking for another way of seeing things, not being satisfied by what it first might appear and most people take for truth.

Juan Enriquez – politician in life science

Ability to tap into a part of the brain that normally is not used and making a stew that nobody ever made before. It's like inventing a new dish while being in a kitchen.

Jay Walker – inventor and entrepreneur

Creativity is put imagination to work, it is practical.

John Oliver – senior system architect Intel

Taking two totally dissimilar areas of interests and building a bridge marrying attributes from both.

Charity Sunshine Tillemann-Dick - soprano

Taking things that are already there (what you have been given) and combining them in a way that people haven't thought of before, being grateful that the process is enabled by others before you.

Mark Penn – vice-president Microsoft

Unique spark that puts things together, the ability and will of problem solving.

Martha Stewart – television personality

Have not even been exposed to it.

Interesting is how this views on creativity nearly all sound somehow familiar and understandable, but having surprisingly less in common. Based on the similarities that arise, some overall 'first' conclusions that can be drawn from the list are:

- Using a part of the brain that usually is unavailable to us; **tapping into the unconscious**.
- Step outside the norm and **generate new approaches** that nobody thought of before.
- Enrich yourself of a knowledge, experiences and relations and use this to **reinforce your own ideas**.
- **Willing to find solutions**, not being satisfied by what it first might appear and take that for truth.
- Manipulating what is given to us and making the familiar strange by **integrating known concepts**.
- **Relax and let it come to you** by making sure you are not blocked in any way.

Also we can start to familiarize a breakdown of phases, regarding the process around creativity:

curiosity → inspiration → imagination → fascination → creativity → innovation

Remarkable is what Jaron Lavier says: 'The moment you define creativity you have it.', which somehow suggests that it still is very hard to exactly pinpoint.

1.1.4 Inspiration, creativity and innovation

Curiosity is the first step towards innovation, creativity is a crucial phase connecting both [1.1.2]. Inspiration is what comes from being curious and when being inspired, imagining can start. After becoming fascinated, the drive to do something with it grows, leading to creative thoughts. If creativity can be translated into an actual 'new' product (or service), the process led to innovation. A free interpretation of the outcomes derived from the last paragraph. But what do all these phases mean, is the process natural, can it be 'positively' manipulated by external factors and if so, does it have effect on everyone with an actual measurable result of enhanced innovation?

Before consulting the professionals on this [2], it might be good to try and formulate some logical seeming assumptions, elaborating on the previous described definitions to create a certain starting point on what people say and think about creativity. At the end, if the process has to be stimulated, it should somehow match with what 'average' people require.

Let just say that it all starts with curiosity. Some people are more curious than others, which probably will give them an advantage towards following steps, but curiosity is within everyone and can be stimulated. No scientific prove is needed for this, since the use of imagination is enough to explain. If an empty box is put on the table, but the person looking at it doesn't know it is empty, he or she will develop a strong urge to know what is in it. Not being allowed or able to open it, different possibilities will be considered, some logic, some rather un realistic. It is a direct stimulation of provoking curiosity and since the truth is so close, but impossible to reach, probably many people will fall for it.

Why using the third phase - imagination - to explain the first - curiosity? Being curious you started reading this thesis, curiosity probably is within you, but the title and topic helped since you found them rather appealing. After reading the preface and contents, it increased your curiosity even more, bringing you to a moment where you became inspired. A combination of both is now with you, wanting to read more, but also enabling you to imagine. It is this 'imagination' that will come and go, reading more about creativity. It is rather fascinating, isn't it? – Author

Curiosity, inspiration, imagination and fascination are steps that can follow-up each other rather quickly and are fairly intertwined. It is the run-up towards creativity, a much more complicated part of the process. To understand this, a more detailed analysis is required and can only be explained from a scientific approach, before it can be related to architecture. When successfully understood and integrated, creative thoughts can be brought to innovation; a facilitated process within a building [1.3].

Why Work Doesn't Happen at Work

1.2.1 Starbucks; philosophy or culture?

Why is Starbucks so successful? A question that can be answered with many 'obvious' answers, from product quality and customer service to the familiar setting and right way of advertising, they seem to understand it all. But why do so many people work when being in a Starbucks? A much more difficult question to answer. There is continuous disturbance, you are surrounded by strangers, the walls are filled with art and there is all kinds of other distractions like looking out the window. Not a very productive setting and things you will not find in a regular office; the place designed for work.

But people do really work over there and actually seem very relaxed, taking pleasure out of their surroundings. And it is not their phone they use for briefly sending an email or playing a game, briefcases and backpacks are opened and laptops appear, everywhere in the room. Others read - no books, but papers - or are having business meetings. A multifunctional office space accessible for anyone at any time in the middle of the city center.

It is something that starts happening in more and more places, extended coffee corners where people work. High quality spaces with good furniture, often biological products, clean and inviting. There is a certain vibe, which cannot be broken. Even when people do come in, have a social talk, wearing an provoking outfit or make some more noise than is necessary. It seems to be all part of the perfect work-climate.

The positive effect is confirmed by the people present, but an interesting question remains: Does it work because people believe in it, or is it really based on scientific prove? In both cases the people that are exposed to it become part of a community, inspired and stimulated by each other.



[A2A/E] series of images of people working in coffee houses

Why Work Doesn't Happen at Work

1.2.2 Everyone is unique and every venue is too

The individuality in people comes closest when we have to deal with our own brain, at personal moments. It can be carried out with clothes, a certain car or phone, the arrangement of your home, but this could all be misleading and faked. But skills cannot be faked and creativity is one of them [1.1.4]. Where people can be categorized by their appearance, no outsider is able to fully understand someone else's brain. It is the uniqueness that makes it impossible to be able to design the perfect space for each individual, let alone to design one space which meets the requirements of all, of which most users are unknown.

If people were given the opportunity to arrange their own working space or had input in the design process, it might make it more feasible to create such individual spaces. Where it is important to give people freedom in where and how they want to live, does this also apply to work. No unchangeable units or desks, but the possibility to choose and rearrange yourself.

Not only are we very different from each other, our feelings change too. Over the years, but on smaller scale also daily and maybe even hourly. Different tasks can have effect on us as well, possibly calling for other circumstances in the work space. Reading, writing, thinking, working with your hands; an infinite series of combinations arises, depending on personality, specific feelings and required task.



[A3] funky cubicle design representing different preferences, stepping away from the known cubicle work stations.

Why Work Doesn't Happen at Work

1.2.3 Innovation time off

Bringing out creativity within companies, is about more than a regular job at a regular work station. Important things to implement are:

- keeping it fun
- making it personal
- changing the topic

In some way these are very similar, but with different time spans. It is all about freedom in the usual restricted work climate.

Stefan Sagmeister, a designer based in NYC, defines our life into three relatively clear parts. He explains the need of using time different by sometimes taking a step back from what you are doing every day. Every cycle of eight years he closes his company for one full year implementing long periods of unrestricted time. Thinking about possible new innovations from a whole other perspective often is very insightful. Retirement years can this way be used way more effectively and enjoyable. The work that comes out of those years flows back into the company and in society at large.



[A4] learning, working and retiring in according to Stefan Sagmeister

An increasing number of companies is using a similar method. Six pioneers that successfully implemented this 'innovation time off', all in their very own way and sticking to it, still take yearly benefit and sometimes even huge discoveries keeping the business innovative:

- | | | |
|--|---------------------------|--|
| ▪ Atlassian (fedex/shipit day) | 5,0% innovation time off | 24 hours quarterly |
| ▪ Red Gate | 10,0% innovation time off | number of days and long weekends a year |
| ▪ Sagmeister & Walsh NYC (Stefan Sagmeister) | 12,5% innovation time off | 1 every 8 years sabbatical for inspiration |
| ▪ 3M (Dr. Geoff Nicholson) | 15,0% innovation time off | implemented in the regular working week |
| ▪ Google (Larry Page co-founder) | 20,0% innovation time off | on average 1 day a week |
| ▪ El Bulli Barcelona (Ferran Adria) | 50,0% innovation time off | 6 months every year experimenting |



[A5A/E] logos of the analyzed innovating companies

These businesses are in very different fields, from software based to a restaurant, but all recognize the value of making time for inspiration. In a way this brings the process closer to architecture (and design/art in general), where originality usually is a large part of the organisation. Now creativity becomes more of any companies' vision, it catches up with the product and becomes the actual incentive. It is not just a way of fostering creativity and scratching itches, but also to get radical and have fun.

Where Sagmeister has a very radical way of implementing the concept of 'innovation time off', by actually closing his studio for a full year, it is interesting to have a closer look at the other examples in the list. The variance in percentage is rather large and also the time span used in different approaches. Fun/close to design again/financial/came out of the one year

Without a doubt Google is the most famous company for giving their employees 'innovation time off', not in the least because they use that exact phrase. 20% is the time scientists get to follow their dreams, which equals one day every week. This is extremely high for an internet/software based business, but has proven very effective over the years. Not only do stay employees loyal with the company because they can literally do whatever they like, it also generated very successful outcomes like Gmail, Google News and the Google shuttle service for employees.

Atlassian is an extremely successful software company, which somehow many people probably never heard of. Clients include Facebook, Ebay, Nike, BMW and Adobe. It invented a very fruitful way of implementing 'innovation time off', by organizing 24 hour events each quarter of the year. In this 1 day projects (3 working days in 1 shift) employees are given the room for whatever is on their mind. They are called 'Fedex Day' or 'Shipit Day' and are based on the concept: 'wouldn't it be cool if...'

Thursday > WHAT CAN HAPPEN IN 24 HOURS? > Friday

				
 Brainstorm!	 Build it!	 Watch the clock!	 Pitch it!	 Vote. Win. Party!

[A6] impression of Fedex Day at Atlassian

The whole process is done between Thursday 4.00pm and Friday 4.00pm and the concept has been copied all over the world. It is only 5% of the actual yearly work time, but has been proven very effective. You've got 24 hours... go!

'Ideas are like stray cats. If you put out food and water, they'll keep coming around. If you ignore them, they'll go find another place to hang out.' - Todd Henry (accidentalcreative.com)

Ferran Adria is a world famous chef, closing his Barcelona restaurant El Bulli yearly for 6 months for just experimenting and playing with new thoughts. The strategy and goal of the firm was to become the most creative place in the world. After 40 remarkable years the 'world's best restaurant' closed her doors for the last time, reopening as a creativity centre in 2014.

Andrés Hatum professor at IAE Business School in Argentina, had the opportunity to do research on this creative organisation from up close while it was still running, trying to resolve the secret formula. 'The experience at elBulli is similar to an artistic experience. Today, what really matters is creativity, and art lies within creativity', Adria says 'It is the challenge to grasp what others don't'. During the 50% 'innovation time off' the team does research on products, tools, technologies and techniques, but also seeks for new product and suppliers around the globe. Interesting is how specialists in other fields get invited to share their vision, such as designers and scientists. This continuously open view towards knowledge outside the company has been leading into the many years of success.

Adria wrote books, launched an exhibition (40 years of Risk, Freedom and Creativity) and taught a culinary physics course at Harvard University. He is always looking for new ways to challenge himself and the people around him, leading to more exceptional creative outcomes.

3M most probably was the first company to come up with innovation time off. In 1946, fifty years before the existence of

Google the 15% rule was implemented. People were given 15% of their time to do anything they wanted. Working on their own concepts without managers looking over the shoulder. A new motto was born: If you have a good idea, try it and explain later! Colleagues in the lab helped each other on this personal projects without a needed approval. People did really follow their passion. Over the past decades this resulted into many interesting finds and it still does. Products were brought into the market that would have been shot down by management several times, discipline kills creativity. 3M understood quickly that freedom was needed to achieve your goals and gave all workers empowerment for time off.

'It is all about doing something which others think cannot be done. Where creativity is thinking of ideas, innovation is doing something with it. A long term vision, where money gets turned into knowledge in a period of time turned into more money. Guarantee on your investment.'

1.3.1 Development and implementation of ideas

The development and implementation of ideas is what brings creativity to innovation [1.1.3]. People have creative thoughts and probably we all walk around with a number of great ideas, which we cannot realize because we do not have the room, facilities or knowledge to do so. The aim is to create a place where the process around creativity is stimulated and where ideas can become reality. It is the implementation of all analyzed material; from theory to building to enable people to bring their ideas into society.

1.3.2 A box for thinking outside the box

Thinking outside the box is a term often used in situations that require creative thoughts. Doing something different than the obvious, coming up with something that might seem crazy, something that no one else has thought of, a new perspective. Outcomes are just as unpredictable as the facilities needed to help people getting to that point [1.2.2], but it can be rather simple as well.

People are more likely to “think outside the box” when you put people outside of a physical box. There is little doubt that where you put someone will have an effect on how he or she thinks, but there is also every reason to suspect that such an effect is situational: It will differ (in both magnitude and sign) under different conditions and for different people. - Psychological Science Vol 23, No 5, Page 502-509 [Leung - May 2012].

Is it the playful way of combining reality with a saying? Is it the series of possibilities what else could be in the box [1.1.3] or what the box represents now you are no longer in it, even though you have actually never been in it? Is it that anything is possible now you ‘virtually’ left your regular restricted vision represented by the box and now are able to move around the cosmos around it? Certainly it has nothing to do with architecture. But if the final goal is to design a building, one place, a ‘box’, where people are stimulated to become creative, generating new thoughts, thinking outside the ‘box’, the mission is as contradicting as challenging; ‘a box for thinking outside the box’.

[A7] representation of ‘thinking outside the box’



creativity

The Urge to Understand; A Scientific Approach

Creativity is science, or at least we need scientists to explain us what it is. Many studies have been conducted over the years, but recently it became a hot topic in nearly all fields of research. This is consisting with the growing need to provide for it, since only if we can pinpoint what makes us creative, we can start to translate it to architecture. Experiments show how our mind works and helps us understand what can enhance or obstruct creative thoughts. Are others holding you back, is it the surroundings, or is it your own brain that keeps you from this new great idea?

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2.1.1 The flow state

In his book 'Creativity - Flow and the Psychology of Discovery and Invention' based on 91 interviews with 'creative' people [1997], Mihaly Csikszentmihalyi defines creativity the following; 'Creativity is any act, idea, or product that changes an existing domain, or that transforms an existing domain into a new one.' This in itself is quite an understandable definition, but a lot more interesting is how Csikszentmihalyi describes the way people come to the point of actually being creative, answering not what it is, 'but where it is'.

'Creativity results from the interaction of a system composed of three elements: a culture that contains symbolic rules, a person who brings novelty into the symbolic domain, and a field of experts who recognize and validate the innovation' [Csikszentmihalyi 1997]. All are necessary for a creative idea, product, or discovery to take place.

- domain - consists of a set of symbolic rules and procedures (visual arts)
- field - are the 'experts' who validate the innovation (critics)
- person - who brings novelty into the symbolic domain (artist)

The three implicated elements are just as important to come to a high level of creativity. The person should know the content of the domain and the preferences of the field to be successful.

A fourth element to be expected could very well be 'place'. Though the place should be recognized as so by the individual, something not many of us are capable of and even if people do, we seem not to know what to do with the promising surrounding environment. The presence of place gives access to the domain, has to be found by the person and can become one of the centers of the field.

An important group of creative people mentioned in the book are 'those who experience the world in novel and original ways'. This 'personally creative' individuals with 'fresh' perceptions and whose judgments are insightful, may make important discoveries that only they know about. The optimal experience (or flow) Csikszentmihalyi describes in many of his writings and also talks about during the 2004 TED event in Monterey California, could very well be implicated on this group.

People entering this 'flow state' seem to feel as if their existence is temporarily suspended. Creating something 'new' requires all capable attention, suppressing other brain activity. Problems at home, or the need for food disappear; people no longer think about themselves. This can be strongly associated with the process of becoming creative, pushing yourself to developing skills on a challenging issue. In this state it just flows out spontaneously, like a musician while improvising - the moment of ecstasy.

Without looking too much at specific interviews from his book, Csikszentmihalyi explains the importance of what is so special about individuals. The differences are enormous, yet the parallels are still there. It is about passion and excitement, knowing you are working on something that never has been done before. The fact that it is meaningful to you, having a purpose, which will bring you into the 'flow experience'. People describe it as being carried by a river, not having to do any effort. But Csikszentmihalyi explains how it still costs a lot of work and requires a great amount of skills and knowledge.

How does it feel to be in the flow?

- complete involved in what we are doing - focused
- a sense of ecstasy - being outside everyday reality
- great inner clarity - knowing what needs to be done
- convinced that the activity is doable - adequate skills
- a sense of serenity - growing beyond the ego boundaries
- timelessness - thoroughly focused on the present
- intrinsic motivation - findings become rewarding in itself

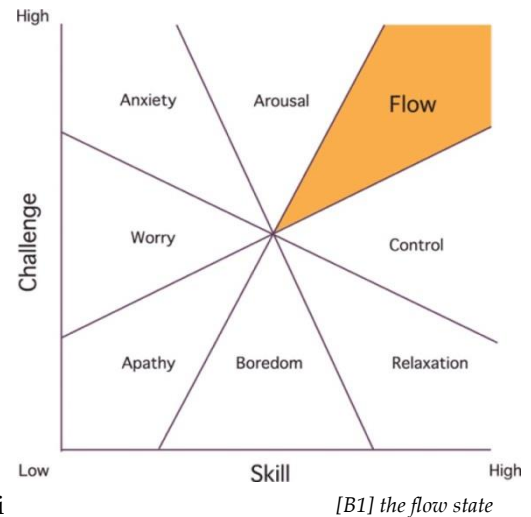
The goal is to bring a balance of both challenges and skills to a higher level than average, usually doing something you really like. Important in addition are the presence of feedback and no worry of failure. Looking at the chart, Csikszentmihalyi points out two stages from which it is relatively easy to become in the flow.

- arousal - over challenged and pushed beyond comfort zone, needed to develop higher skills.
- control – comfortable and well skilled, but not very challenging.

When a task is demanding enough to be interesting, but not too difficult to cause frustration, it offers the possibility for an optimal or 'flow' experience. Once in the flow, whatever production generates from it becomes the reward to continue the process.

About 90 per cent of all people recognize this feeling of flow at some point in their lives. Important within this status is the ability to move from one to the other and also having control over your time is very much essential. 'Living like you feel like', he says 'not doing things the way other people do.' He describes this as deciding to take a nap or eat at any time that suits you personally.

Where creatives have an important role in their personal success, advantages can be found in time and place. A favorable environment can open up opportunities to enable optimal results, something which will be discussed in chapter 3.3; The right setting.



2.1.2 Pleasure derived from challenge and mastery

Being in the flow, gives people a 'good' feeling in which the creative outcomes don't seem to cost any energy. It is a sensation where the task is not too hard and not too easy in which a balanced mix of arousal and control makes it fun to work on [fig B1]. Where challenge is that what people always seem to be looking for and therefore can really drive an individual to new insights and ideas, control at the same time makes it possible to know what you are doing and being able to master within a specific field of expertise/domain.

When this all comes together it gives people 'pleasure' in what they are working on, something which can occur to all people, in all fields and on all levels. A good example is how children can profit from tutoring in mathematics. Not rarely this is a group that does not have many problems with other subjects, but doesn't seem to be able to do regular math. A usual complaint is that these teenagers experience no fun in solving the given tasks, there where most of them could easily be successful at it and often even have great potential. In this case the challenge is not to teach the children mathematics, it is to make them see how much fun it is to be able to solve the given task. The major part of them soon will see the challenge by understanding what they are doing. Math becomes fun, and against all expectations they will have no problem at all in passing tests [1]

In a study done by Susan Harter [1974] again children show how more difficult tasks lead to maximum gratification, compared to easily solved problems show relatively less excitement. Where it starts with the expectation of not being able to work out the given task and where they might need some help from either an adult or each other, it soon changes to understanding that they start to become better at it. Not only this leads to a much bigger smile and rated enjoyment, it also makes them want to do more and harder puzzles [2].

Pleasure seems to be a great motivator for increasing results and the want to keep on working. This doesn't seem to be directly coupled to the specific task like the previous examples. A study done by Northwestern University [Illinois, 2010], shows that people are much more capable of solving insight puzzles after being exposed to a short film of comedy. Neuroscientist Mark Beeman explains how the result could be based on the fact that the humor as positive mood 'is lowering the brain's threshold for detecting weaker or more remote connections', which enables the mind to solve the puzzles [3]. It helps to unfocus, looking at the problem from a larger distance, other angles, before focusing again.

Analyzing Human Behavior

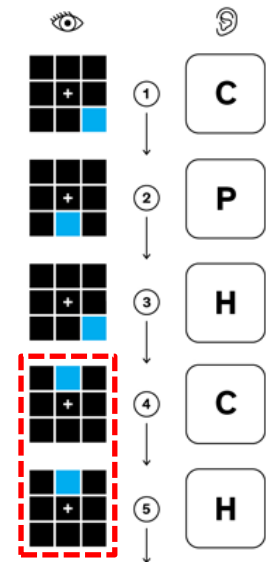
2.1.3 Improvising vs memorizing

What can you do with a brick? A question more often used in tests to study creativity, but a new approach is set by Canadian neuroscientist Oshin Vartanian where he puts it to volunteers while being in a MRI brain scanner. He lets them listen to obvious uses for a single brick and then shifts to more unusual, original, or better said creative uses while observing the change in activity, trying to map the brain circuitry involved in creative thinking. After fifteen years of brain imaging studies [2], it still is rather unclear to researchers to pinpoint creativity within the human brain, but Vartanian believes that this innovative method might give a clearer look on our thinking process in the near future.

Over the past few years the neuroscience of creativity has taken a real flight. In 2008 researchers from the University of Michigan demonstrated that participants who played a multitask memory game – N-Back task [fig B2] – scored higher on tests of a fundamental cognitive ability known as fluid intelligence: the capacity to solve new problems, to make insights and see connections independent of previous knowledge. In other words, the task made people smarter. Oshin Vartanian explained that a lot of researchers are excited about this finding and says the paper ‘has had a profound effect on how creativity researchers think about creativity.’ The hope is that cognitive training will help children and adults boost creative output. ‘The application of this research is probably the most exciting idea in the cognitive science and neuroscience of creativity,’ says Vartanian.

If we can teach and enhance creativity this way, the next step could be to expose this people to a ‘facilitated creative environment’ [1.3], which than again will make room for place (architecture) to do something with the outcomes and affects this has on people. Later we look at the possibility to connect this both stimulating creativity and stimulating to do something with it [chapter 3].

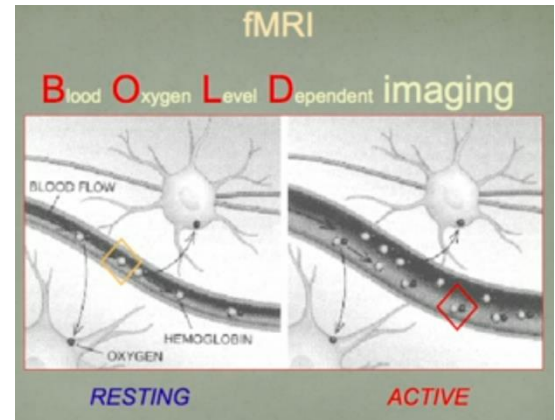
Much remains rather unclear and many assumptions have been made over the years generating answers, resulting in at least as many questions. It looks like that studying art and music has a positive effect on making children more creative in math and problem solving, but how the different subjects could reinforce each other and what features might overlap remains relatively unclear, due to the complexity that at this point nobody seems to get full grip on.



[B2] The N-Back task – remembering previous location and sound.
‘Can you make yourself smarter?’
New York Times – April 18 2012

Dr. Charles Limb works with professional musicians and also uses a brain imager to observe different activity while they are improvising or playing a memorized piece. An interesting conclusion is how it seems like a part of the brain powers down while improvising, that usually plays a role in self-restraint and evaluation; 'the inner critic'. It silences inhibitory impulses, leaving room for the emerge of a more out-of-the-box approach. Dr. Vartanian suspects that showing people bizarre images like a teapot with legs, has a similar effect and forces to loosen perceptual or conceptual constraints to accommodate novelty. Both professors are very interested in how some parts of the brain shut down and others get activated being exposed to this.

Psychologist Dr. Csikszentmihalyi was also involved in research where professional piano players were monitored while being in a fMRI-scan machine playing a plastic keyboard, giving an even clearer view on this. As the musicians improvised a different part of the brain was used compared to playing a memorized piece. This finding was strengthened after the participants repeated the by themselves invented series of notes, since the brain activity than showed many more similarities with the scan from the memorized part. The use of fingers was in this case exactly the same, which gave a scientific result closer to neurology opening the door to combining research between both fields.



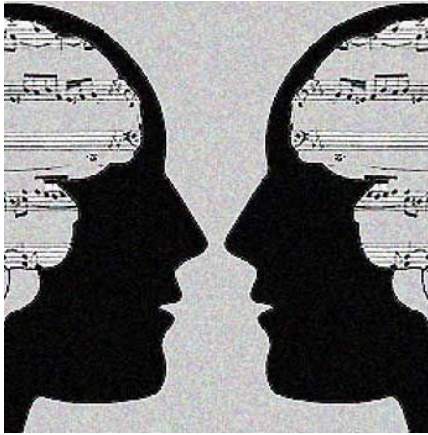
[B3] Analysis by fMRI machine showing brain activity in resting and active situation.

Dr.Limb presentation: Your brain on improve

In a lecture [2010] at the Faculty of Architecture, Design and Planning at the University of Sydney, fellow neuroscientist Arne Dietrich, compares the search for creativity in the brain with nailing jelly to the wall, but Dr. Vartanian plans to preserve: 'Initially, a lot of people were looking for the holy grail,' he said. 'They were searching for the creativity module in the brain. Now we know it is more complicated. We need to look for the component processes, and then somehow bring it all together.'

Lisa Aziz-Zadeh, an assistant professor of neuroscience in USC Dornsife is determent: 'We want to know how does creativity work in the brain?' Her research team found out recently that creativity comes from both sides of the brain and again musical improvisation was an important measuring factor in this studies. The results indicated that the left side potentially is a crucial supporter of creativity in the brain, which seems to make the process of creative thinking even more complicated to analyse. A connection between both hemispheres could also mean more connections between what we do, learn or think off when we try to encourage creativity. The next step planned in the research

would be to explore more of how different types of creativity (painting, acting, singing) are created by the brain, what they have in common and what makes them different, Aziz-Zadeh said.



[B4] improvising musicians use their full brain - schematic display

This is also what Dr. Robert Zatorre is working on of the Montreal Neurological Institute and interesting enough again is using music as basis for his research. 'What we're doing is not necessarily trying to say, "Well, if we use music it will help Parkinson's patients walk." It might, yes, and there is some evidence it does so.' But instead, the quest would be to 'understand the rules by which the brain changes its organization. That's what we need to know,' he adds [USA Today 2008].

'Improvisation always has a sort of magical quality associated with it. People think when you're improvising you have some sort of inspiration that's not measurable. They went forward where everyone else feared to tread.'

Like exposing people to visual art, music also has a positive effect on people in many ways. Where we cannot quite measure how and understand why, this outcomes open up opportunities to experiment on more frequent basis and from different angles. Possibly such research can be conducted at a creative environment to increase the speed of understanding creativity and directly test it in a workable setting.

Neuroscience is a great field which can help us explain what the effect of this experiments is on our brain. They have the ability to measure specific activity regarding creative thinking. Another popular concept within this field is cognitive flexibility; alternate between thinking about two things or considering multiple perspectives at the same time. Darya Zabelina, a graduate student at Northwestern University who studies creativity explains in an article [The Creative Post 2013] , how 'a lot of people are studying cognitive flexibility from a lot of different perspectives' and that 'It will be one of the topics researchers will continue to focus on in 2013.'

'The standard model for creativity is you need to bring all the different concepts you are thinking and manipulate them and fuse them into new concepts.' - Dr. Vartanian [ref 2]

[1] Scientists unravel what makes us creative

Lauran Neergaard, AP Medical Writer USA Today , March 10 2008

[2] Neuroscientists try to unlock the origins of creativity

Anne Mcilroy, The Globe and Mail, January 28 2011

[3] Scientists search for source of creativity

Robert Perkins, Dornsife - University of Southern California, March 7 2012

[4] The Science of Creativity in 2013

Sam McNerney, Big Think - Insights of a Genius, December 19 2012

2.1.4 Learning from children

Since children don't see the obstacles adults see, they think much more freely. They will take a chance and are not scared to be wrong. Sir Robinson states that when you are not prepared to be wrong, you will never come up with anything original. In the current school system children are not facilitated in becoming (staying) creative. Math and Languages are important subjects, Dance and Art not so much. You won't get a good job in dance or art, is assured by adults around them. Children lose their feeling with creative thinking and develop other, more 'grown-up' skills. After a while they even become frightened to pick it up again.

A picture of god

A little girl (6) that never pays attention in class, suddenly does during drawing class. The teacher walks up to hear and asks what she is making, on which the girl replies 'A picture of god'. 'But nobody knows what god looks like' continuous the teacher. The girl instantly answers 'They will in a minute' [2].

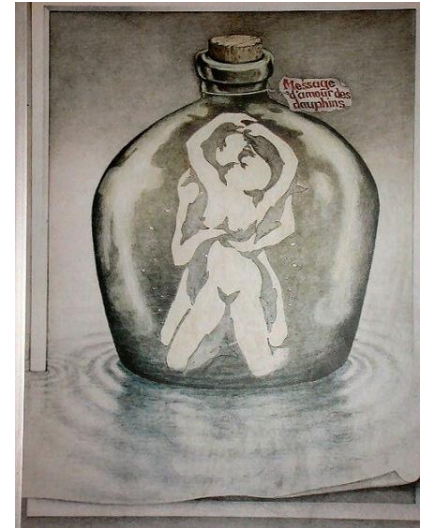
This little anecdote describes very clearly the difference in thinking between an adult and a kid. Over the years children develop an immune system, told to them by adults: 'When it is stupid, or when you are not good at something, don't do it. You might be wrong and people will make fun of you.' Saying you're not creative is a strategy of not getting critiqued. A very dangerous thing, since everybody has creativity and more importantly needs it in further life. Blocking it at such a young age has a much larger damage we could ever think of. Even the best accountant would benefit from creativity in so many ways. Kids that are educated today will have to work for the next 50 years, we don't even know what the world would look like in 5 years. Creative subjects give you the possibility to adapt, which makes them at least as important as any other. Suddenly degrees might not be worth anything.

Hal Gregersen did research on creative leaders and found that a far majority tended to think and act like curious kids. By carefully observing and questioning everything and always experimenting, they are able to 'constantly putting things together that others don't.' It is how a young child approaches the world and lives for understanding everything around them from their own perspective.

Children are a lot easier to analyze compared to adults. They often don't know that they are studied, don't care too much what the information is used for and more importantly they are honest. Not only we can learn from the results looking at children's behavior, but interesting enough we can also reflect them on adult life. The unpredictability for an child's answer is enormous, but since the source had no reason to lie it makes it the more valuable.

The artist of the pictured water bottle claims that children can't recognize the erotic scene, instead they will almost instantly see nine playing dolphins of different sizes and in diverse directions. On the other hand, an adult would only see the intimate couple and usually has trouble finding the dolphins, even after telling. From this we could learn that the adult's mind is trained by society, maybe even made rather 'corrupted' and a child's mind is more naive and innocent - Love Poem of the Dolphins by Sandro Del-Prete.

There seems to be no scientific prove to back up this assumption, but without the evidence you can still see the bottle as a more visual way of the differences between an adult's and youngsters' mind. It makes you aware that in many cases a child might actually see something totally different than the more educated grownup, which could in some cases rather eye-opening.



[B5] children see dolphins instantly,
adults have trouble to find them

Gregersen's advice is to start acting like a kid for about twenty-five percent of the time. Even networking is something a four-year-old is better at than an average or maybe any adult, they talk to just about anybody. It is the fifth 'discovery' skill children are better at according to Gregersen [1].

- Associating Making unexpected connections
- Observing Intense visual analyzing
- Experimenting Trial and error
- Questioning What if? Why not? How could?
- Networking Sharing thoughts

This package of expertise will only be a successful tool when combined with the way a child thinks; the innocence mind [2], the will to take a risk and to believe in the possibility [3]. Where we try to teach ourselves the above skills, at the same time we teach our children to lose this approach in life. An interesting, but even so frightening thought, which will be further discussed in chapter 3.4; Educated out of creativity. Among all these, children don't let themselves restraint by time. They do what they like, whenever they like, creating the opportunity to use their skills in an optimal way.

[1] The innovators DNA

[2] How schools kill creativity

[3] What adults can learn from children

[4] Love poem of the Dolphins

Stuart Pallister, INSEAD article, December 21 2009

Ken Robinson, TED talk, June 2006

Adora Svitak, TED talk, 2010

Sandro Del-Prete, able2know.org, 1987

2.1.5 A larger purpose

Finding purpose in our work, is a great way to get most out of your yourself. Purpose is what gets us out of bed in the morning and has great effect on how we keep enjoyment in our lives. Something you cannot fake and a motivation to pursue problems answering the most difficult questions. It shares a lot with having pleasure in what we do, like described earlier, and helps is to stay engaged. This is what makes the difference in people that don't like their job and people that life live by the fullest [1].

Connecting yourself to something larger is making a dream more realistic. Like a healthy life that makes the world a better place. Making a difference on any scale is a great motivation to keep on working on a particular issue. This can work on any scale making it possible for anyone to tackle the most challenging problems, as long as the individual cares about the outcome. Rosabeth Moss Kanter [2013] states that 'everyone regardless of their work situation, has a sense of responsibility for at least one aspect of changing the world'. It is this 'meaning' that is most likely to produce innovative solutions to difficult problems [2].

An interesting example is a study [3] done by Edward Deci [1970], in which students worked on puzzles, for which half of them got a reward and the others didn't. While working for money this last mentioned group had a very shortsighted goal, there where the students that would not receive any payment doing their task, worked from a very different perspective. Their drive was to solve the puzzles from an intrinsic motivation and worked on it longer and with more interest. Money turned about to be not a very effective motivator, whereas business usually is all about (financial) rewards.

Most work is done in a setting in which the employee gets paid for the generated input. But when this has a negative effect on the outcomes, other ways have to be found to increase success. Especially people that receive a relative large income, seem to lose touch with the actual goal of what they are doing. Recent events show how bankers that have great influence and responsibility working on a bonus system, disadvantaged their own clients, having lost purpose in what they were doing.

Another example is how radiologists that had very little contact with their patients, delivered a better result when being exposed to a photo with the face of the particular patient, as they opened the case file [4]. It is about knowing what you are doing and working on, from a larger perspective, in which personal benefits on the short term have no direct priority, but where results will be much more successful and finally also have a positive effect on the individual. It is not about the money, but about the impact.

[1] Drive: The Surprising Truth About What Motivates Us

[2] The happiest people pursue the most difficult problems

[3] Effects of external mediated rewards on intrinsic motivation

[4] Patient photo's boost radiologists' performance

Daniel Pink, Riverhead Books, April 5 2011

Rosabeth Moss Kanter, hbr.org, April 10 2013

Edward Deci social Psychology, Vol18, P105-115, April 2009

Julie Steenhuisen, reuters.com, December 2 2008

2.2.1 Manipulating your starting point

Recent findings [1] demonstrate how we can imagine being in another place by looking at a photo of the sun and fool our brain to the level where our pupils become smaller. Other scientists show that we can not only pretend to be somewhere else, but also to be a different age and even to be someone else.

Research conducted at Indiana University [2009] found that people were much better at solving insight puzzles when they were told that the puzzles came from Greece or California, and not from a local lab [2]. Expected is that participants will try to think like the people and country from where the puzzle originated. Where the experiment was very successful, none of the puzzles came from far. People that are great at finding solutions that others are not be able to think of, do this all the time and often are good at empathizing. If you don't know what to do, imagine how someone else could solve the problem; What would John do? If you try to answer the questions from someone else's point of view you are likely to come up with many more creative insights, since you force yourself to look at it a different way [3].

A similar effect was found in research done by Darya Zabelina [2010]. A group of undergraduates was divided in two and all were given the instructions that school had been cancelled and asked to write down in detail what they would do, think and feel. The only difference is that prior to this, one part of the students was told they were 7 years old. It led to a very different view on what to do with the free time. Where adults focussed on sleeping and studying, the manipulated group wrote more about desires, rather than obligations, like playing with friends or getting candy. When both groups were tested on creative performance and originality, the group pretending to be and think like children scored far better than their peers. A conclusion that overlaps with a previous paragraph [3.1.4] on how current CEO's tend to pursue problems from a child's point of view [ref 4].

'You are 7 years old. School is cancelled, and you have the entire day to yourself. What would you do? Where would you go? Who would you see?' - John Lerhner's interpretation of the questions asked by Zabelina

Both examples have great effect on simple questions like naming animals. Especially when asked to come up with a list of at least 250. The trick is to come up with as many categories you can and use them to come up with smaller steps for the solution. When you are out of ideas, look at it from different perspective, like John, the 7-year-old, or maybe a park ranger. It will most definitely help you in completing the task. The easier you come up with categories and being able to switch between them, the better you will be at creative thinking.

[1] NOW, Looking at a photo of the sun, May 17 2013

[2] Lessons from a Faraway land: The effect of spatial distance on creative cognition [2009] p 1129

[3] Child's play: Facilitating the originality of creative output by a priming manipulation p59

2.2.2 Experiencing surrealism or unexpectedness

In paragraph 3.1.3 Dr. Vartanian describes how looking at bizarre images can loosen self-imposed constraints, opening up the mind for unusual thoughts. If you intensely think of something surrealistic, the weirdness takes over and inspires your brain to generate other illogical or even impossible connections.

Picture a pink elephant on roller blades cruising through downtown New York while having a cocktail drink. Trying to imagine this surreal happening (or even being part of it), your brain is forced to let in strange thinking patterns, shutting down inner criticism for a minute. This opens up the opportunity to come up with other surreal events, weird concepts or new ideas. It is what (modern) art does; calling out creativity.

Art is known for evoking thoughts and inspiration. Experiencing the unexpected, imagining the image coming alive and rapidly changing feelings when walking through a museum. Moved and taken away by the product and thoughts of someone else, helps us get passed our own routine, pursuing new insights. Tamara Rojo, a ballet dancer, seeks her inspiration in film, theatre, music and art. She explains how ideas come suddenly, but sit inside her for a while before emerging; anything can be the trigger, anywhere at any time.

But we don't have to search for art and inspiration, according to Kate Royal [opera singer] you will find it everywhere: 'It's amazing what you can find inspiring on the Bo 464 bus from Peckham'. Where the most simple things can be of great insight, artists also try to capture our mind with three-dimensional images especially designed for this purpose. Bringing known objects from the street inside the office, or extremely large animals that we only know from books and movies in the public sphere. An hour staring or just walking by in a few seconds, it both could lead to your next great idea.



2.2.3 Fooling the Brain

2.2.3 When the non-optimal is optimal

How can you constantly surprise yourself in your dreams? It is your own brain that comes up with this images and tales you could never think off or don't even understand; but, it is your brain! Without analyzing this too much scientifically, it is still good to think about this, because what it really does is opening the door to creativity. What exactly happens when you are asleep is not quite clear, but what we do know is that you can come up with very creative ideas surprising yourself. The only unfortunate things are that you usually are unconscious and thereby don't have much control over the issues what to dream about. It seems like the brain is functioning different, maybe a part that ordinarily doesn't get the opportunity to participate in daily thinking.

Tom Kelley, business consultant and public speaker, held an inspiring talk on creativity at the 2012 TEDx event in Tokyo, in which he explains the power of tapping into this unconscious part of the brain. His eye-opening advice is to use the 'snooze button' of your alarm clock for an inspiring start of the day. The executive part of the brain (frontal cortex) often functions as a barrier for creative thoughts, but as we go to sleep so does the frontal cortex. In the morning it still is, which leaves opportunities for out-of-the-box thinking, before it takes over full control. This allows us to come up with solutions we usually wouldn't be able to think of, using the mind in an unfocussed way. Important is, according to Kelly, to not fall asleep again and not to get out of bed. Just stay awake and see if you don't suddenly have some new ideas on that issue which has been on your mind for weeks.

As long as we are awake while still partly sleeping, we seem to be able to positively use the brain in an unfocussed way. A similar effect can occur while daydreaming. The moment of wondering away from the continuity of the day opens up the opportunity of tapping into the unconscious. It is why doing simple tasks free your mind of complexity, unknowingly making complex connections which than can seem rather logical. This could very well work when doing a repetitive work, but might also occur when driving a car or taking a shower. Since you are minimally required to pay attention to the familiar task, your brain takes advantage.

In 2011 researchers demonstrated [4] how undergrads were better at solving insight problems at their non-optimal time of day; testing a morning-person late in the afternoon. In accordance with the expectations of the research team, results showed consistently a greater performance during non-optimal times compared to optimal times of day. The outcomes indicate that tasks involving creativity could very well benefit from this. Obviously this findings led to catchy headlines and interesting discussions and again connects to a less aware status of the human brain while improving creativity.

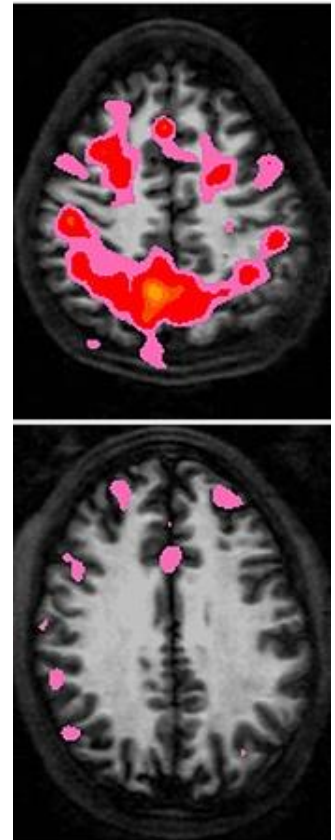
2.2.4 Use of drugs

A very controversial outcome of recent done studies is how alcohol can provide a benefit to the creative process. The Department of Psychology, University of Illinois at Chicago, did research on this particular topic, which long has been assumed by popular culture, but never had been properly tested. Participants were asked to work on a series of common creative problem solving tasks after a part had been intoxicated by a certain dose of alcohol. This group managed to solve more tasks in less time than the sober individuals and managed to do better. The alcohol made it possible for them to answer without too many deep thoughts and find solutions as a result of sudden insight. This could be linked to the frontal cortex again, which might have been befuddled this time leading to a similar effect as the when it is asleep in the morning.

Artists are known for recreational drug use, not rarely turning from creative use to an addiction. But where some might have been saying this for years, it now seems partly proven that drugs and creativity go hand in hand not only as life style, but also scientifically. You could wonder if Jimmy Hendrix, Elvis Presley or Amy Winehouse would have been as successful without the use of drugs, although it did as well had a significant influence on their early deaths.

Dr. Marisa M. Silveri uses the image on the right [Susan Tapert] to show differences in brain activity of two 15-year olds while doing a similar memory test, in which the bottom scan represents a heavy drinker in sober state. Also in this case the (pre)frontal cortex is leading in the results. The harm of alcohol in teenage years is far bigger, since this part of the brain is not yet fully developed. Where it should regulate decision making, in this case it hardly does anymore. Silveri explains that this does give teens more difficulty to filter out bad choices. If we read the word 'bad' as 'creative', it could partly explain the success of artists. Where this might have negative consequences for heavy users, a small dose of intoxication can have more positive outcomes.

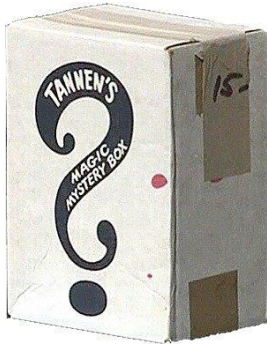
There might not be a plenary answer yet, but at this point tricking the brain seems to be a widely supported conclusion from a scientific approach to enhance creativity. In some cases maybe a little provocative, but where a day dreamer might seem unproductive at first, he could be a very valuable asset in the right environment and not unlikely will surprise everybody, as might an addict.



[B7A/B] brainscans of 15-year old male
[A] non-drinker [B] heavy drinker

2.2.5 It is all about the unknown

Everyone is at least a little curious and has the capability to imagine. Both are of essential value in the creative process and can be strongly enhanced by adding one catalyst; mystery. The unknown is what we need to help our mind to think of unexpected ideas and solutions. It is what brings out curiosity and imagination, which then leads to creativity. Mystery could maybe be even more important than knowledge; withholding information seems to be much more engaging.



[B8] magic mystery box

'When I was a kid, my grandfather bought me a 'magic mystery box' from a little store in NYC. At the time it cost 15 dollars which bought 50 dollars' worth of magic tricks. Anything could be in there, just imagine! I never opened this box, it represented infinite possibility. Now if I look at my work, mystery boxes are everywhere in what I do. The box, always standing on a shelf in my office, still gives me daily inspiration.'

J.J. Abrams (co-creator and director of the television series Lost)

Incredible curiosity is the way to new insights. A giant question mark can mean so much more than knowing the one answer to the question. It bends curiosity into imagination, giving endless options of what it could be, hope and prospective. Generating more questions by only maybe answering some, keeps us interested and motivated to persevere. It is more about what you think you're getting instead of what you know you're getting, going from one 'mystery box' to the next.

A movie theatre is a great example of a mystery box. Not rarely the moment when the light dims is the most exciting of the experience. Just the fact to go there and let you surprise, is what makes it to a great success. After, or sometimes even during the movie, we will most likely criticize it, but that is not the point. We are drawn by the mystery; what comes next?

Inspired by each other:

J.J. Abrams is obsessed with his apple computer which challenges him in his work, 'It basically says: 'What are you gonna write worthy of me?', I'm compelled.' Steve Jobs was presenting the new Video Ipod in 2006 using a screencap of the tv-series Lost as a background in his keynote speech. The inspiration Abrams got from the technology was now used by Jobs to sell that same technology.



[B9] Steve Jobs presents new Apple technology

2.3.1 Getting away

The previous chapter describes the benefits regarding creative thinking of make the brain believe things are not quite as they seem, (mostly) from a unrealistic point of view. But where you can imagine to be somewhere else, you could also really get away from your regular environment. It is like going to a coffee house to become more creative. Interesting is how in this case the environment starts to play a much bigger role, stimulation by what is around you, for example architecture.

Awarded American medical researcher Jonas Edward Salk was convinced his inspiration got an enormous boost after changing his usual work environment in the 1950s. Where his progress significantly had been slowed down working from his dark basement laboratory in Pittsburgh Pennsylvania, he decided to travel to Italy to clear his head. Salk arrived in Assisi, where he spend some time in a 13th century monastery, surrounded by cloistered courtyards, elegant columns and hillside views. He was most certain that this change of conditions led to new insights and abled him to come up with the successful formula for the later polio vaccine.

Salk experienced the change of environment as basis for many following events. Not only in research within his field of expertise, he also decided to bring the positive energy of Assisi back to the United States more literary. Convinced by the power of architecture and nature inspiring the human brain, together with Louis Kahn, he designed the Salk Institute. Salk toured the country for over a year in search for the right location, being very well aware that the building would be designed to inspire like the monastery has done for him. A place with the potential of becoming a place to go, when scientists needed to get out. In 2009 Professor Galinsky proved that students are more likely to solve creative tasks after literally going away, after returning from a temporary stay abroad.

It is about finding a place where you can relax. Again this is consisting with taking a shower or walking through the forest, it clears your mind. A break from internet or turning of your phone, letting go the issues that are related to everyday life. It is why people take and need vacations and unknowingly this can lead to great insights. Being in a unfamiliar setting makes you more aware of the surroundings, new impulses that might connect loose ends in the brain which suddenly is the basis for a new idea. You get away from direct contact with your regular social life and usual routine, and have full direction over your own acts [more about self-control in paragraph 3.3.4; Autonomy]. It can happen in a setting based on interactional, natural or architectural grounds, of which at least one is leading and when combined can reinforce each other. The first two will be further discusses in this chapter, the third one in section 4; The Built Environment.

2.3.2 Natural elements

The presence of nature seems to be of great value way of boosting your creative thinking process. Back in the 70s Rachel and Stephan Kaplan already proven the positive effect of greenery on the human mind. An important factor is like described in the previous paragraph, that nature above all has little (technological) distractions. Author and journalist, Richard Louve, experiences a harder time in finding places away from technology. Louve likes to work outside and is certain that he delivers better writing looking over a lake or being surrounded by trees. His perfect workspace is in the middle of the Kenian savanna, where his attention can drift from wild animals, blowing grasses and endless landscape. Robert Dijkgraaf [2012] is another example of someone being inspired by nature and explains how he and his colleagues at Princeton University, spend their time walking around campus.

I planted myself at a picnic table, stared at the water and let my brain go all mushy. I relaxed my eyes, focusing on nothing. Writing became easier. Words that were locked in the brain vault appeared. I saw the bigger picture, the story waiting to be told. – Kaufmann [2013]

Research shows [Kaplan] for a long time that people are more focussed after looking at nature views, whether they are real or projected on a screen. It has positive effect on humans in almost every setting ad all ages [Wells 2000]; at home, at work, during revalidation in a hospital [Berto 2005] and even when rehabilitating in prison. But more recent studies [Ulrich] show specifically that adding flowers and plants in an office environment increases creativity.

When starring intensely, we forget about our current series of priorities and let our thoughts go. It has much to do with daydreaming [explained in paragraph 3.2.3; When the non-optimal is optimal], the secret is to not try to be creative. Where we can lose focus by watching really anything, it seems to work a lot better with natural elements; think of a tree, clouds, water or even a plant on your desk.

Not only greenery or the sky will have this effect on people, the colours green and blue do as well. It creates room for relaxation and unfocused thoughts to the ones exposed to it and boosts productivity and innovation. At the same time these colours also are used in hospitals This states that the same surroundings that make you feel good and pleasant, enhance creativity.



[B10] nature used as office

[1] Time to write? Go outside – Carol Kaufmann, New York Times Opinionator [September 16 2013]

[2] Why getting away releases your creative juices and helps spawn your best ideas, Michael Leiva-Gomez [August 7 2013]

[3] Interview DWDD with Robbert Dijkgraaf [May 16 2012]

2.3.3 Limitations, stimulations and interaction

The social setting around us is of great influence in the process of creativity. What other people think and how they express themselves towards you has a large effect on creative minds. The opinion of others is why we are afraid to fail, but a simple pat on the shoulder can make an enormous difference, giving people the confidence and believe they really can do something great. It is personal attention that breaks or makes, since we seem to be very sensitive to individual contact. People need to feel comfortable and recognized. Nearly all creative people start because someone else made them feel like he or she knew something at some point, made them feel respected and valuable. Being loved

Benny Golson, a musician, describes how creativity for him comes by breaking the rules. This is only possible in an environment where others don't withhold you from doing so. No managers, or any hierarchy for that matter, just equal minds that stimulate whatever you are working on, trusting what you are doing. The connection with people is important and the ability to share thoughts can speed up any creative process significantly. Brainstorming with someone forces you in a good way to look at the issue differently, which you than can interpreted yourself again. Not only talking and listening to, but also looking at other people can be an endless source of inspiration. Also interaction can lead to a common excitement and help each other through difficult times and setbacks.

Unfortunately the environment rarely just stimulates us during the creative process. Teresa Amabile identifies the main obstructers of creativity in het article 'How to Kill Creativity'. Nearly all seem to be directly linked to the social structure people have to deal with.

- Evaluation Worrying people they will be judged on what they are doing.
- Surveillance Making people feel they are being watched while working.
- Competition Putting people in a win or lose situation.
- Overcontrol Telling people exactly how to do things.
- Pressure Establishing large expectations from people.
- Rewards [analysed in paragraph 3.1.5; A larger purpose]

Mostly unintendedly this really does kill creativity, up from school to any work environment. But Amabile also states that it is possible for management to improve creative output of their employees. Both individuals and teams work best when having organizational support and resources, supervisory encouragement and trust, in a challenging environment where people are working on assignments that match their interest and expertise.

2.3.4 Tuning the Environment Autonomy

People seem to feel most comfortable when they are in control of the situation. Changing the setting of the room, leave whenever they feel like and decide to have either interaction or being alone. Everyone is different and the changing environment even increases this individuality and personal needs. It has a direct link to the previous paragraphs, since having autonomy means being able to get away to find less restrictions and the right stimulation.

Freedom is the key to fully be able to access your creative thoughts. It gives you space and time for exploration on both mental and physical level. When not directed by external factors, a person is able to work on what he thinks is important. This makes it possible to follow dreams, which is why the drive to succeed will be much bigger. Derive pleasure from what you are doing is what provides enough energy to get going, enabling you to produce a plurality of which you could do under regular circumstances.

The diversity in people is enormous, as is the perfect environment to work in. Full autonomy is the best way to come closest to each desired personal setting. From open to closed, old or new and crowded to secluded, people need to be able to find their own space.

Professor Andrew Wiles solved Fermat's Last Theorem, a challenge that perplexed the best minds in mathematics for 300 years. He stayed at home working in his study for eight years, not telling his friends, family or colleagues what he was working on. People thought he got crazy and became unproductive, but he actually was using the various work of mathematicians before him as puzzle pieces to unravel the problem.

Where Professor Wiles choose to work in full isolation, also his ideas didn't came from nowhere. He found inspiration in the accomplishments of others, by looking over the work in search for new connections.

It is all about finding the right combination between certainty and uncertainty, something children are very good at. They are exploring every hour of the day. Sometimes with friends, sometimes alone, but what they do know is that they can always rely on the safety net around them. When people start to become more responsible for their own actions, they will start to rethink before doing and try to avoid risk. Afraid to fail people tend to seek for the overload of certainty they ones had, which directly influences the direction on your own life, reducing your access to creativity.

[1] Top artists reveal how to find creative inspiration, Laura Barnett, The Guardian [January 2 2012]

[2] Creativity through Autonomy and Interaction, Mark d'Inverno, Uni of London [January 20 2012]

[3] The Desire for Autonomy, Alex Lickerman, The Creative Post [November 30 2012]

2.4.1 The value of multiple answers

Creativity often involves divergent thinking - coming up with as many unique ideas or answers to an open-ended problem or question like 'What can you do with a brick?'. Crazy and unusual answers result in fresh ideas. Divergent thinking is the free form, often spontaneous, exploration of many novel ideas. It requires the courage to make mistakes, the freedom to play and a push to explore new perspectives. But it also can involve convergent thinking, narrowing down or combining ideas into the best result. Convergent thinking is the search for the most correct answer to a clearly defined problem and requires necessity, well defined objectives, knowledge and reasoning skills. Equal opportunity for and ensuring interaction between both, leads to a successful solution.

In 2011 The Washington Post, publishes an article entitled 'The case against college'. It is based on five questions asked to Dale Stephens, a 19-year old that leads 'UnCollege', a social movement that questions 'the role college play's in overall success'. Reading through it, a few key points stand out that confronts us with the current system we all seem to approve off and maintain. He starts with referring to a study in which young children were given a divergent thinking test, an assessment that measures the propensity for creativity. Questions asked are 'How many uses can you think of for a paperclip?' Most people will come up with ten or fifteen different ways, but people that are actually good at this might come up with two hundred, says Sir Ken Robinson in a 2008 lecture. They will look at from different perspectives asking 'Could the paperclip be two hundred feet tall? and 'Could it be made out of foam rubber?' Like, does it have to be a paperclip as we know it?



[B11] different uses for a paperclip

'Creativity is the process of having original ideas that have value. Divergent thinking is the ability to see lots of possible answers to a question; lots of ways to interpreted it; an essential capacity for creativity'

Sir Ken Robinson

In the book 'Breakpoint and Beyond', George Land and Beth Jarman analyze the outcomes of a similar imaginative thinking test, used by NASA to select innovative engineers and scientists. 1600 children (age 3 to 5) participated and 98% of them tested at the genius level. Even people that were convinced that the joy of creativity begins early got extremely excited by the results. The same group of children was re-tested five years later when only 30% tested genius, and again at age 13 to 15 when only 10% still was. The same assessment taken by over 200.000 adults (age 25+), shows that only 2% tests in the genius level. These outcomes were staggering from which we can draw two important conclusions:

- we all have this capacity
- it is mostly deteriorates

An consistent assumption that can be made from this is that schools kill creativity, a conclusion shared by both Ken Robinson and Dale Stephens. In the current system students are rewarded for following guidelines set by others, memorizing facts. This takes away the ability to think freely and the encouragement to follow your passion. What we actually seem to do is getting children distracted from their passion to teach them boring stuff.

Where we learn children a question can be answered either right or wrong, creativity is based on the value of every different answer, which makes none of them right or wrong. A 2010 IBM poll analyzing input of CEO's, clearly states creativity as the number one leadership competence of successful future enterprises. But if creativity is proven to be such important, why does the place where we educate the CEO's of tomorrow out of creativity? Many brilliant people think they're not creative, because they are judged by the system. It seems to be about living by the rules instead of having a vision and realizing your dreams.



[B12] artistic impression
of today's education

Picture Christmas day, a large tree in the living room with many presents under it and three kids waking up, running down the stairs to see what Santa brought them. They will most likely rip open all presents in no time, but what could very well happen is that they will end up playing with the empty boxes combined or even instead of the toys.

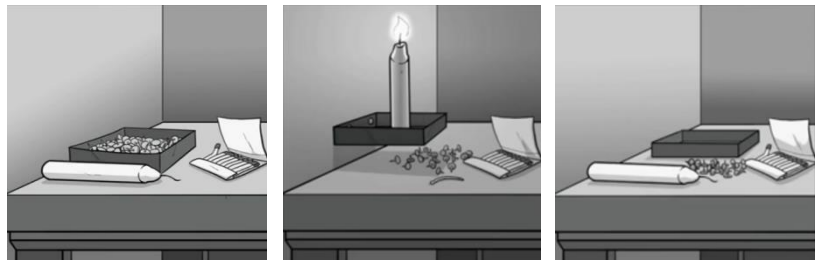
The children get more fun from playing with box, something that might seem crazy. However a box can be used in many more ways than a designed toy and therefore it is much more interesting than you could think of as an adult. It is about openness to these many options, multiple answers to one question, that children are so much better in.

2.4.2 Crisis at the most critical space

‘Facebook and Microsoft may have started at universities, the innovation took place outside of the classroom’, Dale Stephens points out, writer of the book ‘Hacking your education’, which is about the ‘unschooler’. ‘Unschoolers’ don’t necessarily drop out of school, but they do create their own education from the world by finding mentors (inspirational people), taking classes only when they want in whatever field they like (individual interests), starting businesses and learning collaboratively. This is exactly what Steve Jobs in 2005 during a speech at Pixar Studio’s. ‘It isn’t going to Harvard that put you ahead in life, it is applying to Harvard.’ A study done by Stacy Dale and Alan Krueger is a backup to this statement and implies that colleges self-select. Smart motivated people go to university, there is no prove that college actually creates creativity or improves it.

Universities can actually achieve the opposite of educating, since after getting a degree the average debt of students is so big, that they are forced to find a job instantly to pay back that money. Instead of being motivated to take the time to start companies, projects, causes or initiatives. Degrees are so important in this society, but this way they become more a shackle holding you back from developing yourself and doing what you like or good at. In addition to this we face the potential of having to many people with degrees, which creates a saturated market. With upcoming countries like India and China, housing billions of people, this reality might not be far off. Selection procedures will then, and already do, change, focusing more and more on other skills that can be used interdisciplinary solving unknown problems in the future. Many big universities like, MIT, Harvard and Stanford understand this concern and opening their doors and systems to see how the ‘uncollege learning philosophy’ can help the next generation’s educational experience. ‘If universities want to stay competitive, they will have to innovate’ [Stephens].

Research has shown that we are more likely to solve tasks like the ‘candle problem’ at an early age [Defeyter - 2000], since we are able to think more freely. Mark Twain once noted he never let his schooling interfere with his education. Over 100 years later, this statement still is very powerful, revealing the shortcomings of the system. Maybe today we finally can rediscover education, revaluing the goals and re-implement it in life meeting tomorrow’s needs. It is about new perspectives, where people are not afraid to make mistakes, but encouraged to do so; we need a continuous environment to play in and with.



[B13] the candle problem

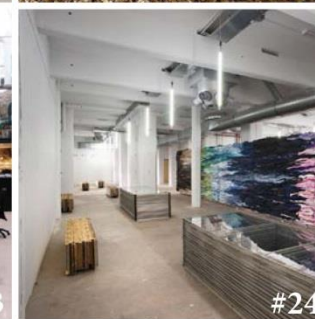
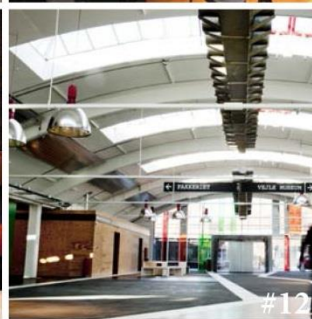
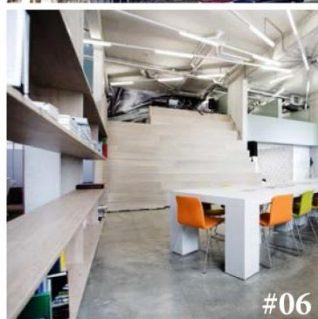
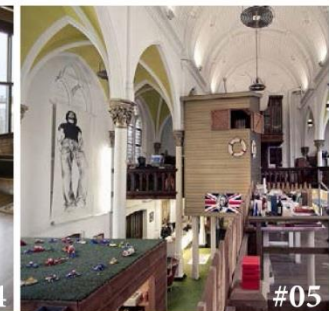
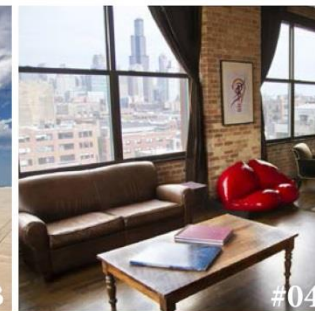
[1] The Art of Creativity, D. Goleman, Psychology Today [March 1 1992]
[2] 50 design problems in 50 days, Pete Smart, Smashing Magazine [May 27 2013]

creativity

Attempts to Facilitate; The Built Environment

The factor of individuality is what makes it so hard to look at and design for creativity from a general point of view, but somehow there are places described by many as highly inspiring. Interesting is how those spaces can still look very different, something which becomes more clear if we look at a series of them. A systematic analysis of forty architectural environments realized over time and especially designed for enhancing creativity, brings us closer to define possible guide lines to facilitate it; exploring the ‘creative work environment’ as we know it today.

<i>3.1 Designed creative work environments</i>	<i>xx</i>
<i>3.2 The building and its users</i>	<i>xx</i>
<i>3.3 In search for similarities</i>	<i>xx</i>
<i>3.4 A composition of design tools</i>	<i>xx</i>

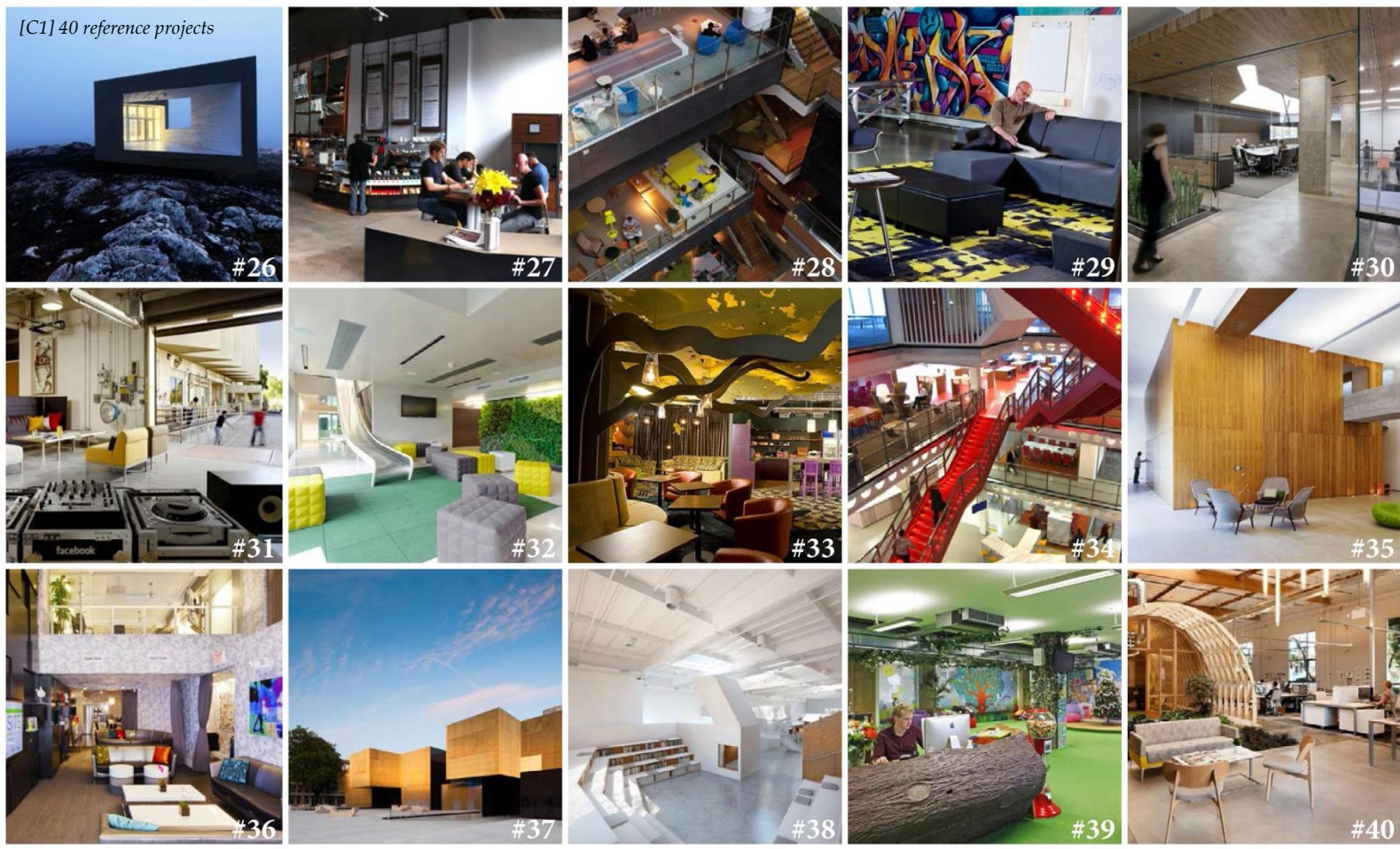


Designed Creative Work Environments

3.1.1 A broad variety of proposed solutions

Worldwide a large number of creative work spaces have been realized overtime, of which a selection is mentioned in this paper. Results and conclusions are based on a study on the forty projects visualized, which are listed in more detail on the next page. All buildings are individually analyzed in the additional document 'References on Creative Work Environments'. Data and imagery from this booklet are used to compare the projects in search of similarities and specific qualities. The buildings were found in a search on 'creative work environments', 'creative offices' and 'business incubators'. Sources used are magazines, lectures, internet, books, site-visits and informal dialogues.

To clearly map both differences and parallels, looking at the proposed solutions, a large number of projects had to be analyzed. When the total of forty buildings showed obvious resemblance with an earlier study on twenty-five projects, there was no need to increase the number of references again.



Designed Creative Work Environments

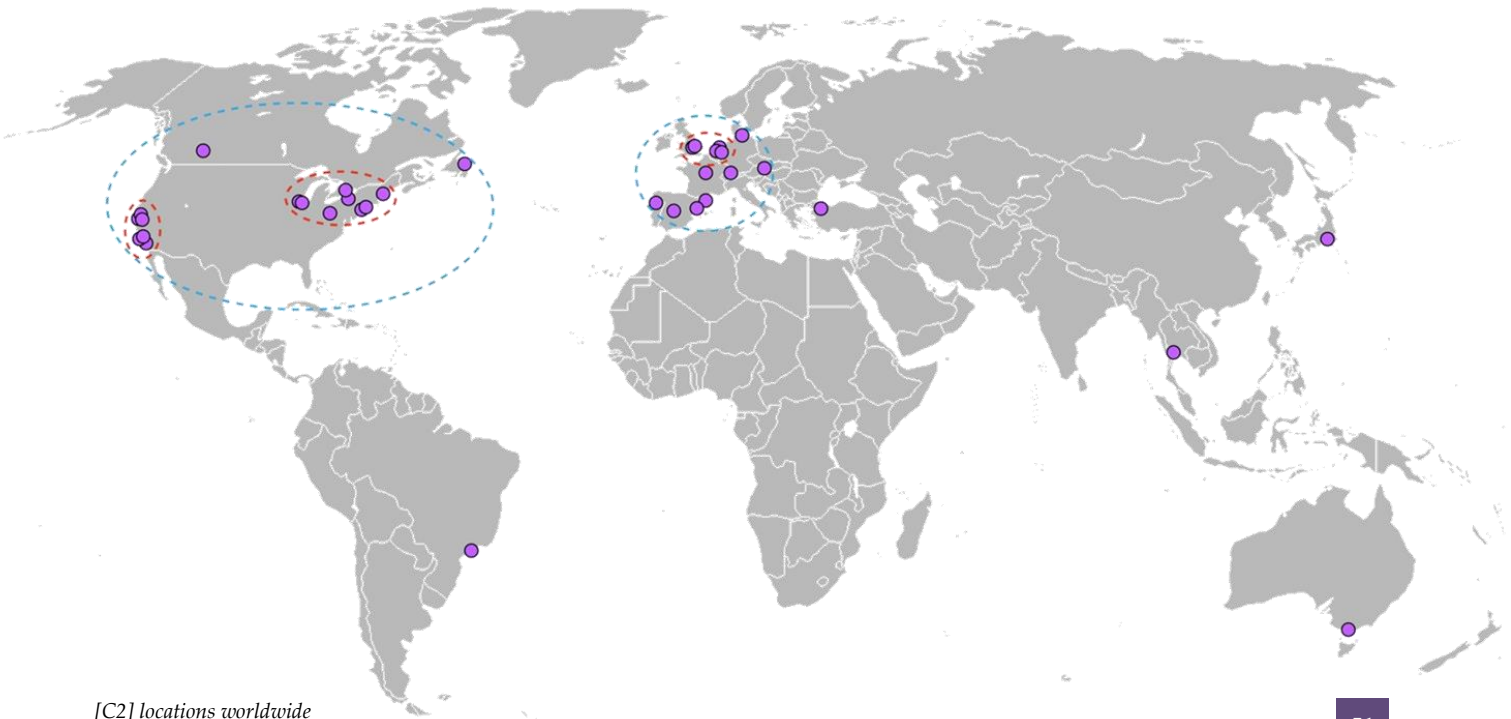
3.1.2 When and where it all started

The buildings are chronological organized, listing year, name, city and country. The timeline represents a historical view of the implementation of creative work environments within our society and a world map is used to place the projects per city (area), creating an idea of where they are realized on a global scale.



#01	Mancuso Business Incubator	Batavia, NY	United States	1959
#02	Bell Labs Holmdel Complex	Holmdel, NJ	United States	1962
#03	Salk Institute	San Diego, CA	United States	1962
#04	Thinkubator	Chicago, IL	United States	1989
#05	KesselsKramer	Amsterdam	Netherlands	1996
#06	Post Panic	Amsterdam	Netherlands	1997
#07	Sparkspace	Columbus, OH	United States	2000
#08	Pallotta TeamWorks	Los Angeles, CA	United States	2002
#09	Metropolis Coffee Company	Chicago, IL	United States	2003
#10	Centre for Social Innovation	Toronto, ON	Canada	2004
#11	Magellan Idea Center	Charlotte, NC	United States	2005
#12	Spinderihallerne	Vejle	Denmark	2006
#13	Red Bull HQ London	London	United Kingdom	2006
#14	TBWA/Hakuhodo	Tokyo	Japan	2007
#15	Youtube HQ	San Bruno, CA	United States	2007
#16	The HUB Amsterdam	Amsterdam	Netherlands	2008
#17	Google Zurich	Zurich	Switzerland	2008
#18	Spaces	Amsterdam	Netherlands	2009
#19	Selgas Cano Office	Madrid	Spain	2009
#20	Workbar	Boston, MA	United States	2009
#21	YES! Delft	Delft	Netherlands	2010
#22	Workspace6	Amsterdam	Netherlands	2010
#23	Medina Turgal DDB	Istanbul	Turkey	2010
#24	HaKa Building	Rotterdam	Netherlands	2010
#25	Corus Quay	Toronto, ON	Canada	2010

#26	Long Studio	Fogo Island, NL	Canada	2010
#27	The Summit	San Fransico, CA	United States	2010
#28	ANZ Center	Melbourne	Australia	2010
#29	Headspace	Calgary	Canada	2011
#30	Horizon Media Office	New York, NY	United States	2011
#31	Facebook HQ	Palo Alto, CA	United States	2011
#32	Microsoft HQ	Vienna	Austria	2011
#33	Saatchi & Saatchi's	Bangkok	Thailand	2011
#34	Macquarie Group Office	London	United Kingdom	2011
#35	StudioSC	Sao Paulo	Brazil	2012
#36	Offsite	New York, NY	United States	2012
#37	Platform for Arts and Creativity	Guimares	Portugal	2012
#38	Hybrid Office	Los Angeles, CA	United States	2012
#39	Mind Candy	London	United Kingdom	2013
#40	Hayden Place	Culver City, CA	United States	2013



[C2] locations worldwide

Designed Creative Work Environments

3.1.3 Conclusions on first sight

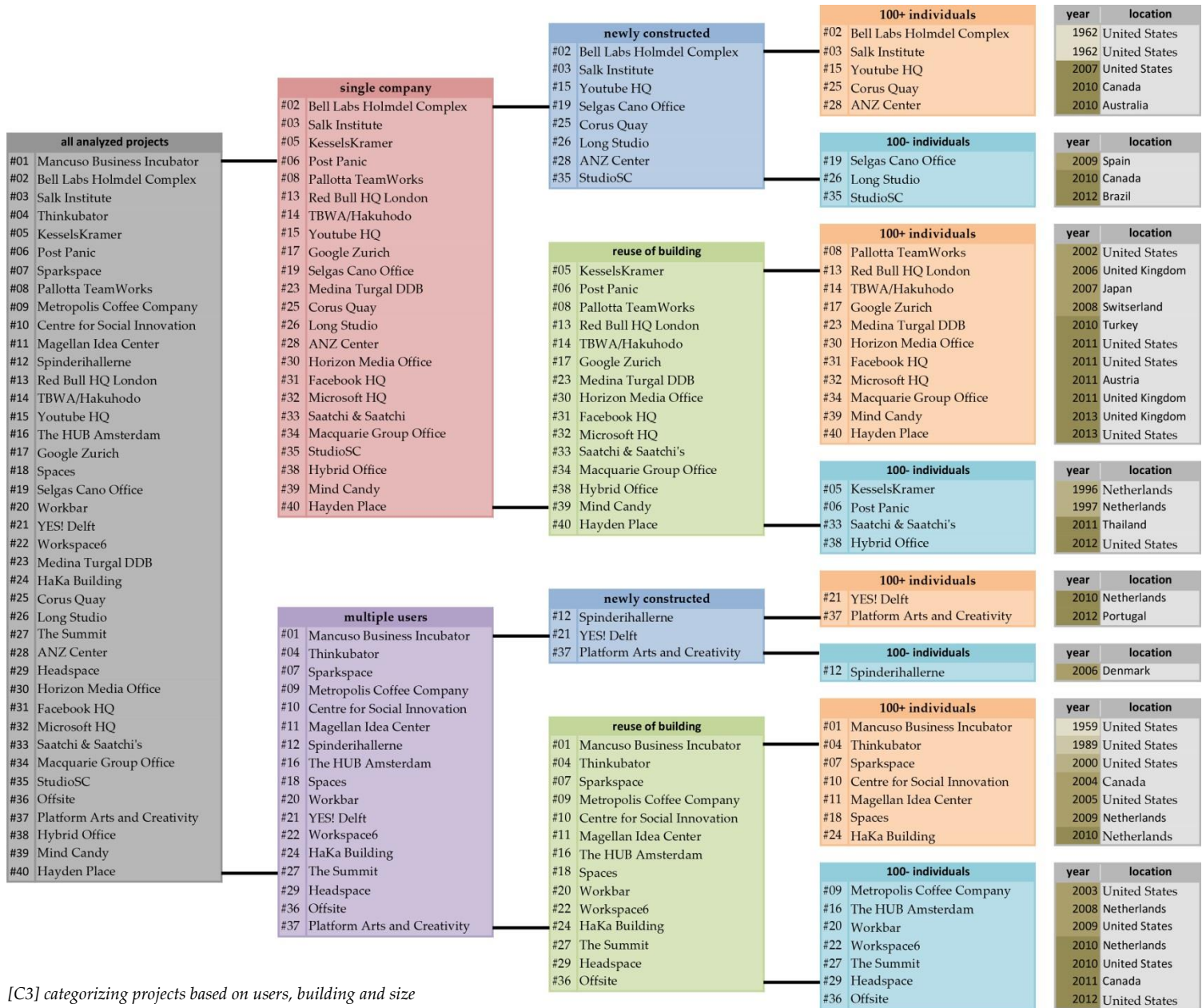
Significant is that around 1960 three projects are realized in the United States on both the East and West coast, that remark the start of the designed creative work environments. An extreme gap follows until one project in the late eighties and two in the mid-nineties, when creative workspaces start to arise in the Netherlands. This is the beginning of an expansion in both Europe and Northern America, which rapidly leads towards an explosion, of which the original starting points (East and West coast USA and Netherlands) remain as main clusters. This is where the more service providing countries are situated, which could signify this outcome. An individual project is realized outside this places, with only very few on other continents, all arising parallel on the growth in the USA and Europe. Especially around 2010 there is clear density visible in the timeline, something that could very well continue over the coming years.

Three key-factors are used to divide the projects in groups for a more detailed analysis.

- Building as host for multiple users/businesses or just for one company
- Building newly constructed or reused
- Company larger or smaller than 100 users/employees

Dividing by the first factor leaves ten hosts for multiple use and fifteen for one user. This could have to do with the fact that incubators are more difficult to find and work from a more local perspective. The second step shows a much larger number of reused buildings in both groups. Within the multiple user buildings there is only one out of ten that is especially designed for this purpose and in the other case it is 40% of the projects. Most likely because the costs of new structures are too high for such initiatives. The last factor brings us to a final of eight groups. This visualizes a much larger percentage in reused buildings for large companies in both cases. Smaller firms within these groups are all Dutch, which could have to do with easier access to data in the Netherlands. This does still show that bigger firms don't choose to design a whole building, but go with an existing shell and core, due to lower investment.

Of the newly constructed (large) buildings, most date back to the beginning in the early sixties. Even YES! Delft was partly constructed within an existing complex, which leaves only one of 25 projects, of which also the exterior is fully designed for creativity after 1962. Over the years focus changed slightly from lay-out and routing to more attention for interior and flexibility. Most recent projects show an extreme attention to modern furniture and crazy objects within the building. In total it becomes very clear that creativity is mainly designed from inside the building.



[C3] categorizing projects based on users, building and size

3.2.1 Going Google

Single User

Also these companies specially design, equip and furnish buildings to facilitate people in their daily work setting, but only for the purpose of one company's employees. An obvious example is the Google office and today many companies stir towards a more flexible and creative environment. Also this concept started around 1960, when the first analyzed building was built especially to meet the needs of a company's vision. Bell Labs already known for its innovative creative way of working and thinking specially designed the Holmdel Complex to facilitate this vision in all possible ways. It was the first time architect and employer worked together to make work more productive by making it more pleasant from the users point of view. Meeting, flexibility and comfort were key-factors in this.

Principle

To analyze and talk to employees is key in designing a pleasant work environment. This is where people feel comfortable and therefor become more creative. Flexible spaces which can be personally decorate, with communal areas for interaction and unplanned meetings with friendly strangers.

Accelerator

The copying and developing of this concept got real shape in the mid-nineties, when some small companies started to implement this within their office environment. It was also this time when Google was founded, leading towards a starting point for bigger companies to do the same. Again this has strong connections with the rise of internet, but it got real shape during the introduction of social media. Companies linked to this new digital sector reinvented the concept of creative work environments. Nearly all analysed companies are in advertising, software or other digital and online services. Where incubators made use of internet for mainly information and on a local scale for connection, single user companies use it on a more global scale. The increasing number of users worldwide made it possible to realize.

Globalisation

Internationally the creativity within one company made a larger step compared to the hosting principle. Also in this case it is more implemented in Western Europe and Northern America, but it clearly has a wider range on the map, although it still seems to be based on independent and only several realized projects. Large multinationals apparently prefer countries within the Western World. Being based online, location should not be of great influence, but location still has an important role.

3.2.2 Principle of hosting

Hosting

The Batavia Industrial Center, established in 1959, is the oldest analysed project clustering multiple firms and also according to the United States National Business Incubation Association the first one worldwide to do so. In all cases it is the most famous carrying out the concept in the early years and the initiator Joseph Mancuso, in a joking way, even coined the term business incubator after one of his first tenants, which was a chicken company.

Principle

Where the incubator meaning could also reflect on one company, the principle of the hosting and clustering external businesses is basis for a rapidly increasing sector today. To analyse this principle the term business incubator still is used, since this is common way to appoint this projects.

Where the Batavia Center was focusing on providing space with facilities, this is what companies today mostly still do. Shared secretarial services and other support, but also copy, phone, fax and other equipment. Also multi-use meeting rooms, car park and horeca facilities were of great value. Over the years some important qualities were added to this list.

- Freedom (different locations and times of work)
- Experience (training, mentoring, coaching)
- Knowledge (external expertise)

Networking has been the key over the most recent years and today it even goes further.

No longer is all about having access to a network, but also the feeling of being part of it. This leads more towards a community, which can easily become very large and interactive due to internet. The HUB is a great example of this, where people have a relatively small community in their local work environment, but strongly connect to other local HUBs around the world, creating an extremely

Accelerator

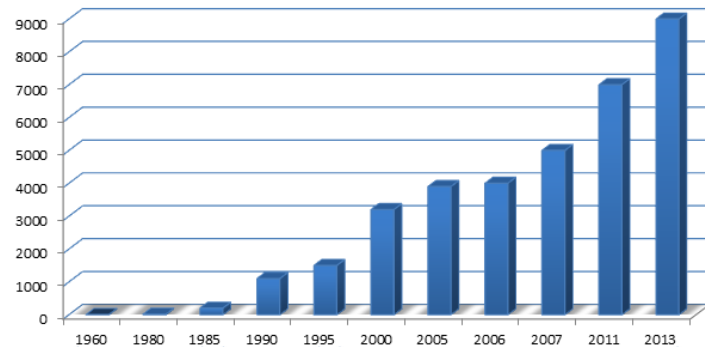
The timeline and added years show a fast growth in business incubators with an explosion in the recent years. This acceleration most likely will continue and is in line with the results of Ryzhonkov shown in the graphic below. When internet became fully accessible to the public in the nineties, the incubators also started to arise. An almost exponential growth in the years after is consistent with the evolution of internet. More users means more information and quicker connections means a 'smaller world'. Together this leads to a fast rising number of opportunities, which provides more inspiration and encourages people to do something with it.

Where the internet might show a more fluent growth, even slightly decreasing at the end, it is because a doubling of users on internet automatically means an exponential growth of information. Also the internet in places like Western Europe and Northern America reach the maximum number of users, where incubators are far from saturated.

Globalization

A graphic used by Ryzhonkov in his paper on the history of business incubators, shows an increasing number of incubators over the most recent years and in his timeline he names a worldwide estimate in 2007 of 5000 incubators globally located:

<i>Worldwide</i>	5000
<i>North America</i>	1000
<i>Western Europe</i>	900
<i>South America</i>	400+
<i>Asia</i>	1000
<i>China</i>	540
<i>Middle East</i>	<i>unknown</i>
<i>Africa</i>	<i>unknown</i>
<i>Australia</i>	<i>unknown</i>



[C4] number of business incubators worldwide

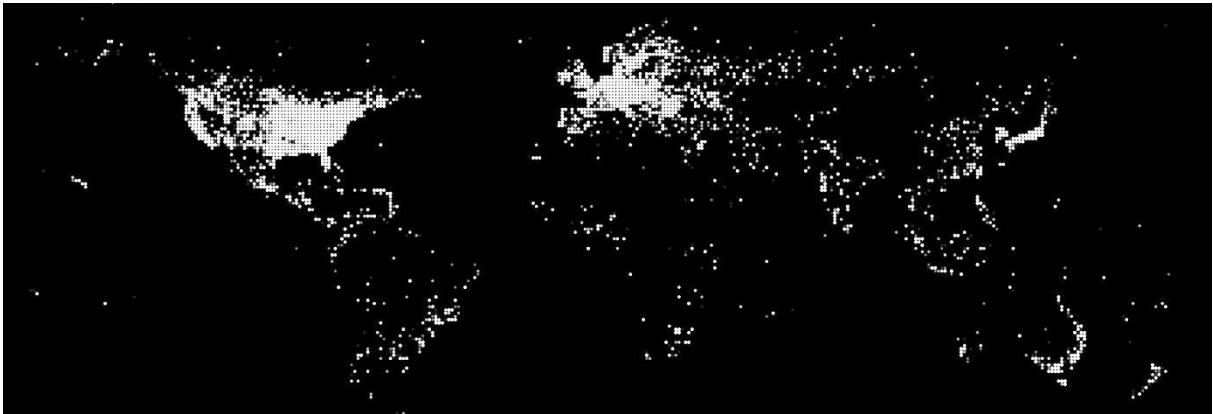
A more defined source isn't given, but is in line with the total estimated worldwide (7000) and in the United States (1250) five years later by the NBIA [2012]. Also Ryzhonkov refers to a study done by the NBIA on which his presented data are based. Interesting is how the analysed projects clustering firms, all are located in either Europe or Northern America. From this data we could conclude that the creative aspect only is applied in those countries where the concept ones started. The incubators in other parts of the world might be realized, but possibly they work differently. An obvious reason why the 'creative' business incubators all are in countries that are more based on the providing of services instead of products, is because most users of this concept are too. Apart from what the research results show, globalisation seems to almost happen simultaneously with the acceleration, most likely both due to internet access. Limited access to international data can have been of influence, in which location, language and possibly politics might impede accessibility.

The Building and its users

3.2.3 Changing needs over time

Two main principles generated from this series of projects show an almost evolution through time. Interesting to see is how some aspects stay very close to the original designs and how others clearly do change. Most important in this is the mentality of the people, an expectance of the value of creativity through the full structure of companies and social life. Where this was picked up by more employers over the years, it took a fair time before this was widely integrated. This switch in mind-set, was largely stirred by the invention and accessibility of internet. At that point development went forward in big steps, creating opportunities for everyone at every time, making the world smaller and more open. People start for themselves, needing facilities and money. A logical result is the demand for spaces that provide this. It is a chain reaction, causing rapid changes.

general access internet → increasing number entrepreneurs → need creative work environments



[C5] quantity of internet connections worldwide

The label creativity is added to this, since new ideas shape our world today. It is what Bell Labs knew for a long time and what Google reinvented in a more visual and maybe even successful way many years later. Nearly all large (software and advertising) companies copied this formula, requiring special architects for this development.

Google reinvents Bell Labs → many companies copy Google → specialized architects needed

Where people try to build for creativity, others try to understand the meaning of it. Experiments have been done over the years and seem to have a surprisingly same curve as internet and the rise of creative work spaces have. Also in this case almost all research is done over the past five to ten years.

This extreme urge to understand creativity is consistent with the growing need to provide it. If we know more about creativity, we can be more specific in facilitating it.

growth in creative work spaces → more research on creativity → better environments for creativity

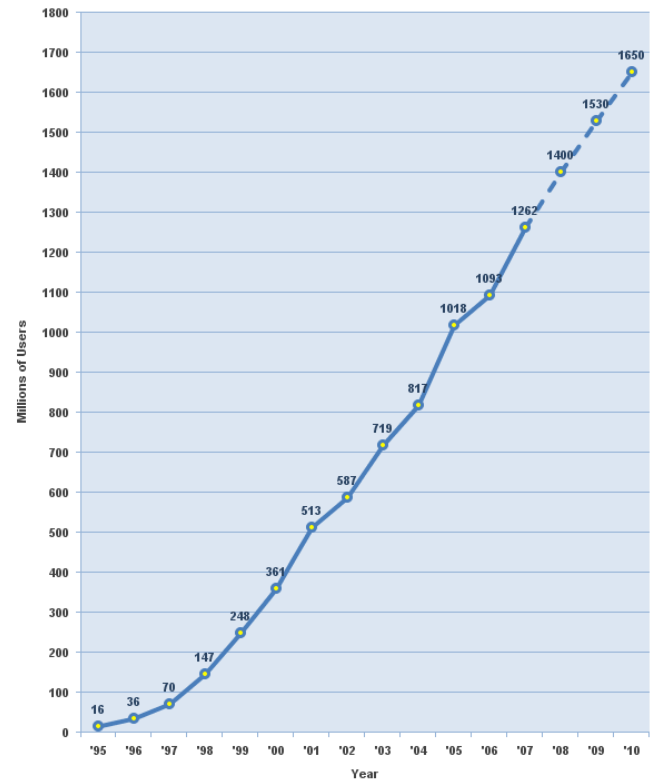
In a time where crisis is a common used word, we tent to start searching for other ways to sustain ourselves. This is where creativity comes in, since really anyone could be the source for a solution to one of the many problems we have to deal with. It requires all needed attention from education to companies and investors, making it possible to do something with these unused creativity. Ideas that can become accessible this way can lead to innovating steps into the future. This way Spaces Amsterdam is financed by the CEO of Mexx, investments with a risk, but possibly very successful.

society in crisis → need for other resources → money to facilitate creativity

Over time an important change is that work can be fun. Where Bell Labs also worked with giving people time to do what they like and good at (innovation time off), today you will find slides and aquariums and pool tables and music and hammocks and much more in the new created offices. If people feel comfortable, they want to stay and don't look at the clock every five minutes. Also if people don't sit behind a desk, they can still come up with new ideas and many are convinced that this moments are even better for creativity.

fun objects integrated in office → people work with pleasure → more fresh thoughts are generated

This gives an overview of how people and time changed and where creativity is hot and an important skill today, we still cannot define it properly. After a quiet period of multiple decennia, it now is present everywhere around us. It is a challenge that will continue in both architecture and science and as long as we are not clear, the best solution seems to be to just give room for people to let out their creativity and facilitate them in the process.



[C6] internet users in the world

In Search for Similarities

3.3.1 Mapping features and qualities

All 40 projects listed in paragraph 3.1.2 (page 47) are combined and further described in the booklet 'References on Creative Work Environments', as attachment to this thesis. Imagery, basis facts and standing out qualities are mentioned for each building to give a better overview of the references used in this chapter on the built environment.

Design decisions that are special to each individual project are summarized in a series of six keywords, which results in a large amount of terms representing creativity within today's buildings. Words then are counted and grouped based on similar starting points and overlapping meanings. This way a short list is created with overall qualities, on which all projects are retested, showing on which scale the tools for enhancing creativity are used in comparison to others.

The values, results, conclusions and recommendations mentioned in the following paragraphs are based on personal analysis of the author. Comprehensive research, consisting of studying imagery, video's and articles of the used references, combined with several visits and interviews, resulted in a series of design tools that architects use within the built environment towards enhancing creativity.



[C7] more images and details on the projects is found in the additional document 'references on creative work environments'

In Search for Similarities

3.3.2 Cross-referencing

#01 Mancuso Business Incubator	facilitate	exchange	nurture	coaching	connect	create
#02 Bell Labs Holmdel Complex	connect	facilitate	open	exchange	flexible	location
#03 Salk Institute	location	open	nature	tranquility	material	exchange
#04 Thinkubator	meeting	facilitate	outdoor	interior	relax	diverse
#05 KesselsKramer	international	unusual	location	interior	open	material
#06 Post Panic	open	diverse	flexible	interior	transparent	split-level
#07 Sparkspace	informal	color	connect	exchange	personal	art
#08 Pallotta TeamWorks	budget	sustainable	color	open	material	simple
#09 Metropolis Coffee Company	meeting	relax	art	accessability	food	community
#10 Centre for Social Innovation	facilitate	connect	exchange	social	improve	challenging
#11 Magellan Idea Center	meeting	connect	color	facilitate	open	flexible
#12 Spinderihallerne	open	create	create	exchange	nurture	art
#13 Red Bull HQ London	social	transparent	dynamic	connect	fun	open
#14 TBWA/Hakuhodo	split-level	green	connect	open	informal	flexible
#15 Youtube HQ	color	fun	green	connect	diverse	relax
#16 The HUB Amsterdam	personal	facilitate	flexible	community	sustainable	international
#17 Google Zurich	personal	diverse	food	community	fun	connect
#18 Spaces	social	open	professional	location	interior	dynamic
#19 Selgas Cano Office	green	light	color	open	personal	tranquility
#20 Workbar	personal	sustainable	connect	community	facilitate	nurture
#21 YES! Delft	coaching	exchange	facilitate	finance	open	nurture
#22 Workspace6	art	location	facilitate	connect	flexible	open
#23 Medina Turgal DDB	material	flexible	diverse	connect	personal	exchange
#24 HaKa Building	sustainable	social	art	flexible	material	interior
#25 Corus Quay	open	fun	green	exchange	color	informal
#26 Long Studio	nature	open	light	material	location	art
#27 The Summit	open	food	art	community	connect	accessability
#28 ANZ Center	color	open	diverse	split-level	interior	relax
#29 Headspace	flexible	meeting	exchange	informal	color	facilitate
#30 Horizon Media Office	open	material	facilitate	diverse	split-level	informal
#31 Facebook HQ	open	color	informal	sustainable	connect	exchange
#32 Microsoft HQ	tranquility	social	fun	connect	green	relax
#33 Saatchi & Saatchi's	color	interior	unusual	open	diverse	material
#34 Macquarie Group Office	open	split-level	color	diverse	interior	transparent
#35 StudioSC	personal	social	material	nature	connect	simple
#36 Offsite	meeting	color	exchange	relax	diverse	open
#37 Platform Arts and Creativity	open	art	light	tranquility	material	exchange
#38 Hybrid Office	interior	material	light	open	split-level	transparent
#39 Mind Candy	unusual	green	open	color	social	fun
#40 Hayden Place	green	open	material	budget	simple	light

In Search for Similarities

3.3.3 Common grounds in facilitating

The key-words used to describe the design and qualities of each project cover a wide range of ways to enhance creativity. Sometimes the words largely mean the same and in other cases they stand rather far away from each other. They can refer to anything, from objects to feelings. To set workable guide lines for a further analysis, the list of 40x6 words is summarized to the eight phrases below. On the next pages all projects are tested to this shortlist of common grounds in facilitating towards creativity.

Open transparent environment

>> openness within the building

Open – Split-Level – Transparent – Light

The visual escape [3.4.1]

Inviting setting for meeting

>> a place where people cross paths often

Connect – Exchange – Informal – Social – Community

Bringing strangers together [3.4.2]

Unusual and design furniture

>> interior that stands out in color, material or design

Material – Color – Interior – Art – Unusual

Powerful interior [3.4.3]

Nature and sustainability

>> use of natural elements and greenery

Green – Sustainable – Light – Location – Food – Relax – Tranquility – Nature

Presence of nature [3.4.4]

Playful and artistic elements

>> weird and playful objects in and around the building

Fun – Art – Interior – Unusual

Weirdness and fun [3.4.5]

Support and assistance

>> additional functions to support development

Facilitate – Nurture – Create

Nurturing environment [3.4.6]

Diverse workspaces

>> variation in space to meet different preferences and tasks

Diverse – Personal – Flexible

Diversity of space [3.4.7]

Valuable additions

>> interesting qualities that stand out in specific projects

Coffee – Food – Accessibility – Tranquility – etc.

Specific qualities [3.4.8]

	Mancuso B.I.	Bell Labs	Salk Institute	Thinkubator	KesselsKramer
qualities	- #01 +	- #02 +	- #03 +	- #04 +	- #05 +
open transparent environment	x	x	x	x	x
inviting setting for meeting	x	x	x	x	x
unusual and design interior	x	x	x	x	x
nature and sustainability	x	x	x	x	x
playful and artistic elements	x	x	x	x	x
support and assistance	x	x	x	x	x
diverse workspaces	x	x	x	x	x

	Magellan I.C.	Spinderihallerne	Red Bull HQ	TBWA/Haku	Youtube HQ
qualities	- #11 +	- #12 +	- #13 +	- #14 +	- #15 +
open transparent environment	x	x	x	x	x
inviting setting for meeting	x	x	x	x	x
unusual and design interior	x	x	x	x	x
nature and sustainability	x	x	x	x	x
playful and artistic elements	x	x	x	x	x
support and assistance	x	x	x	x	x
diverse workspaces	x	x	x	x	x

	YES! Delft	Workspace6	Medina Turgal	HaKa Building	Corus Quay
qualities	- #21 +	- #22 +	- #23 +	- #24 +	- #25 +
open transparent environment	x	x	x	x	x
inviting setting for meeting	x	x	x	x	x
unusual and design interior	x	x	x	x	x
nature and sustainability	x	x	x	x	x
playful and artistic elements	x	x	x	x	x
support and assistance	x	x	x	x	x
diverse workspaces	x	x	x	x	x

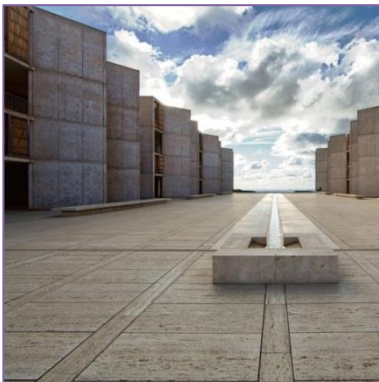
	Facebook HQ	Microsoft HQ	Saatchi Saatchi	Macquarie Gr	Studio SC
qualities	- #31 +	- #32 +	- #33 +	- #34 +	- #35 +
open transparent environment	x	x	x	x	x
inviting setting for meeting	x	x	x	x	x
unusual and design interior	x	x	x	x	x
nature and sustainability	x	x	x	x	x
playful and artistic elements	x	x	x	x	x
support and assistance	x	x	x	x	x
diverse workspaces	x	x	x	x	x

3.4.1 Visual escape

The presence of an open space is something which repeatedly stands out in the analyzed projects from the early sixties to the most recent examples. Nearly all buildings, designed with the purpose of enhancing creativity, implemented this transparent setting as part of the (work)environment. Interesting are the many different ways and interpretations that are used to achieve this sensation of spaciousness.

It does not even seem to be so much about being able to move freely, but is more based on the 'visual escape'. This literally untouchable space seems to have great effect on the mind, enabling us to drift away and daydream, freeing our mind from usual thoughts and reality and allows us to pretend and imagine. The openness takes away 'borders', creating 'voids' in which anything can happen. It might not even be about something really happening, the possibility could be enough. Looking at images of the related projects, can even call out that same feeling. Your mind instantly comes to rest and after imagining to really be there, a similar effect seems to happen, unlocking parts of the brain that usually are unreachable to us.

But having the option to actually move through space obviously is a big advantage as well. Walking can help to clear your mind, it brings you to other places, which then can give you different perspectives on both thoughts and your surroundings. Looking at other people and objects from different heights, distances and angles, enables you to relate in a very personal way. Depending on where you stand, the same situation can scale up or down. Fully unnoticed, places and everything



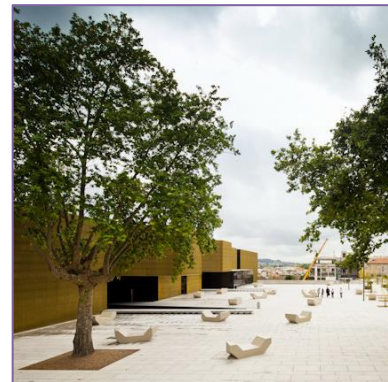
#03 Salk Institute

[USA, 1962]



#02 Bell Labs

[USA, 1962]



#37 Platform A&C

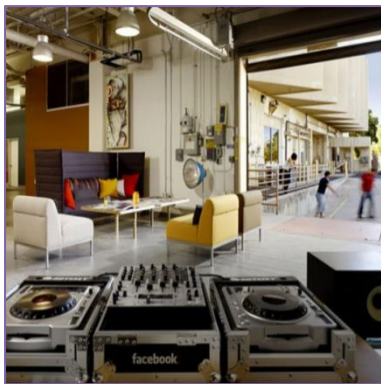
[Portugal, 2012]

happening in it, are intensely observed, in which you operate from total anonymity, hidden in an observation of someone else. This way the ability of walking around extends the qualities of the visual escape, since it now can be experienced in many more different ways.

Being able to lose yourself in that what you see, is something which architects integrate on all different scales, both outdoors and indoors. The factor of 'pretending' is in both cases essential. What do you see? Are you the person you are looking at, are the other people much smaller, like cars and houses from an airplane? What could be the topic of conversation and what if this or maybe that would happen next?

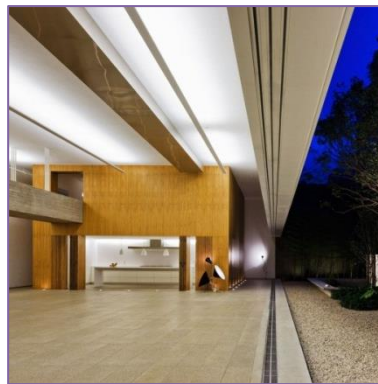
It is an experience which is mostly undergone alone, especially the part of losing focus and starting to imagine. Even when multiple people are present at the same moment or in that particular situation, think of watching an amazing sunset, it mostly is a personal feeling and wordless dialogue with yourself. A conversation can come from this and maybe together you will pretend things are not what they are and time is not what it is, but in this case the actual means changes from 'what you see' to 'interacting with another mind'. This is something analyzed in more detail in the next paragraph.

The visual escape provides the ability of getting lost in time, place and thoughts. It is the openness that is of extremely high value in the creative process, a space you can shape and fill, which than can have most unexpected outcomes. Connecting your inner visions and becoming the basis for new ideas.



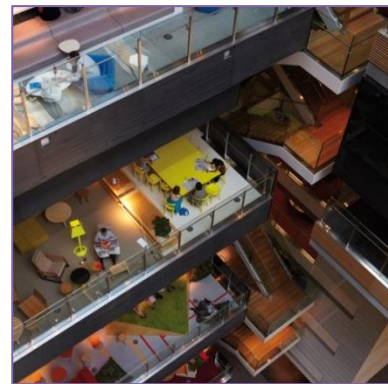
#31 Facebook HQ

[USA, 2011]



#35 Studio SC

[Brazil, 2012]



#28 ANZ Center

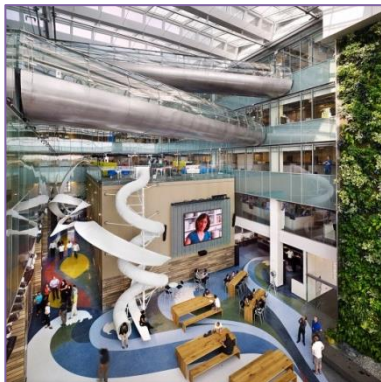
[Australia, 2012]

3.4.2 Bringing strangers together

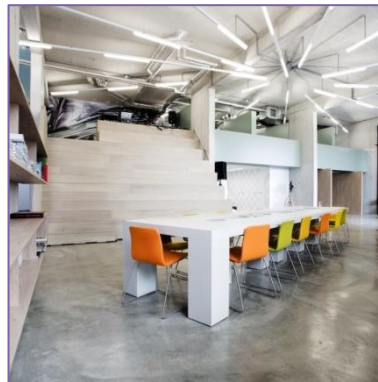
Sharing even the slightest thought can be the trigger which leads to the development of a until then incomplete idea. Where one mind might be brilliant, a (regular) second can make the difference. This not only results from organized brainstorming, but a general comment, maybe from someone with hardly any knowledge of the particular topic, can fully unexpectedly turn out to be the missing link. A fresh, almost naïve, brain, unintentionally thinks extremely out of the box in a way the 'expert' could never do. The basis for many new insights of others, speeding up the process towards a solution rapidly.

To stimulate this interaction between people, hence between minds, an inviting setting is the key. Informal 'hang-out' spaces, often integrated in the main routing of a building, is how 'architects' almost force people to meet. The right location of these areas is important and simply improves chance, since meetings can be both planned, as well as unplanned. It is something clearly visible in many of the analyzed projects. The circulation space is widely laid out with extensive room for seating areas.

An imaginative example, which most likely was not even designed to be such place, is the water cooler (or coffee corner). They usually are located at places in the building which are easy to reach for many, covering a large part of the 'office' population. People from different divisions, using the same small number of square meters, suddenly meet since they have the similar desire for a drink, or maybe even more for a break from what they have been doing the past hours. The opportunity to talk to 'strangers' is created, with all that can come from it next.



#25 Corus Quay [Canada, 2010]



#06 Post Panic [Netherlands, 1997]



#21 YES! Delft [Netherlands, 2010]

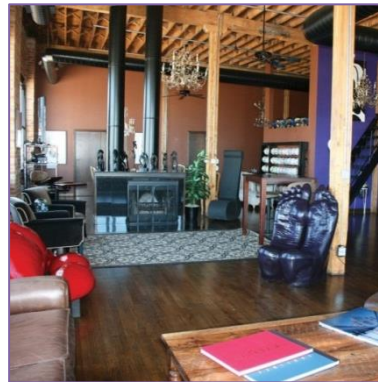
This combination of different backgrounds, fields of expertise and ages, can be extremely successful in tackling problems, but they have to be put together first. A formula which is not often applied, since we tend to organize the world in groups of people with similar qualities. The meeting areas might help to bring them together when having a break, but it is only partly effective over the full day. It is why some of the 'creative work environments' have chosen a more rigorously way and changed their whole building into an interactive meeting place. Each individual can sit at any place in the 'office', surrounding him/her daily (or even every hour) with other people. There still is room to concentrate, but the informality overrules and a short exchange of thoughts is never far away.

This way of designing, often results in one large common room, in which there always seems to be a certain level of noise and movement. The 'coffee corner' expanded over the whole building and it almost starts to feel like a 'coffee house'. An important factor which strengthen this experience is the use of homely and design furniture. The next paragraph gives a closer look on this more playful office setting and what it can call out in people towards creativity.

An inviting setting for meeting seems to open up the possibility to get away from work, with the people you work with. Interacting in a different way, unintentionally working on the problems and challenges together. It provides room for thinking out loud, becoming inspired by others and maybe do or say something crazy ones in a while. The boundaries of the regular work climate are no longer there, which takes away restrictions and enables you to share personal visions with strangers.



#40 Hayden Place [USA, 2013]



#04 Thinkubator [USA, 1989]



#10 Centre for S. I. [Canada, 2004]

3.4.3 Powerful interior

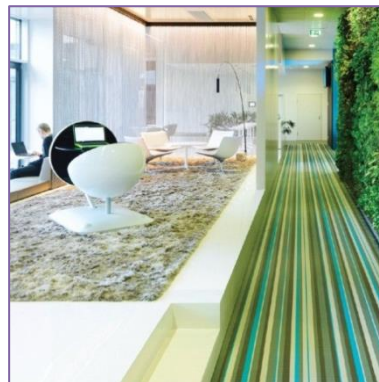
Chairs have inspired us for centuries and today maybe even more than ever before, seem to say something about the owner. Where in history the royal family showed their wealth by architecture, clothes and furniture, it now seems to be something of each individual. It is not so much about money any longer, but more about identity. Especially furniture design is something people are sensitive to and living rooms often are carefully decorated for friends and unexpected guests.

Architects have been designing chairs for many decades and seem to see it as an extension of their work as an artist. Where you might expect them to design furniture with the building, not rarely these projects are real standalones and merely meant for prestige. Now more people want to own design furniture, the chairs no longer just appear in exhibitions, but also in our daily life. Using a chair for what it was originally meant to, but also having a piece of art, raises an interesting question: what is the better experience; to look at a 'unusual' chair, or to sit on one?

It certainly does something with the room, bringing uniqueness on the smaller scale. A scale that comes much closer to the people than architecture and therefor to the workspace. Many of the buildings even seem to get more identity from the furniture, compared to what the architecture does. But where does furniture stop and architecture begin? The overlay seems to be quite large when it comes to creative work environments and often the design is done inside out. Perhaps also because the chosen buildings are mainly reused (3.1.3) and large interior objects are very present in the room. Objects that appear to have arisen from a combination of furniture, artwork and architecture.



#05 KesselsKramer [Netherlands, 1996]



#32 Microsoft HQ [Austria, 2011]



#24 HaKa Building [Netherlands, 2010]

Interior is leading in the design, so much starts to become clear. When it is not a famous design chair, it is as unusual as garden furniture or as homely as a soft couch with colorful pillows. Places where we usually feel comfortable and relaxed are brought onto the work floor. The chairs seem to be able to bring the feeling with them, since people enjoy working at the office this way much more. They experience it more like an extension of their personal life and not as a forced daily routine to benefit the boss. Using natural and reused materials is another way of how people bring identity to the work place. In some cases the interior even changes frequently, due to adjustments of the users, making it a group design of those who know best what they want and need to function properly. The ability to move around objects and sometimes even walls, makes the user leading and not subordinate.

But professional designers also start to focus on highly quality interior, which also strongly calls out design, like Vitra and Sevil Peach. Interesting is how this way the need for identity is more and more translated into a catalogue. This inspires others to find different ways to stand out. It makes some designers go further than others, resulting in settings that without too much hesitation can be labeled crazy. It is the weirdness that plays with the mind of the user, triggering him/her to come up with other 'crazy' thoughts (see also 2.2.2) and this way directly enhances creativity. In paragraph 4.4.5 this topic is further analyzed by looking at more examples.

The arrangement and design of interior turns out to be a very important factor when creating creative work places. Almost all projects get their identity from their furniture, to inspire those who look at it and those who use it. Important is the ability for the user to play and change the setting of objects in the room, as well as the feeling that comes with the design, which can be anything but work.



#14 TBWA/Hakuhodo [Japan, 2007]



#11 Magellan Idea Center [USA, 2005]



#18 Spaces [Netherlands, 2009]

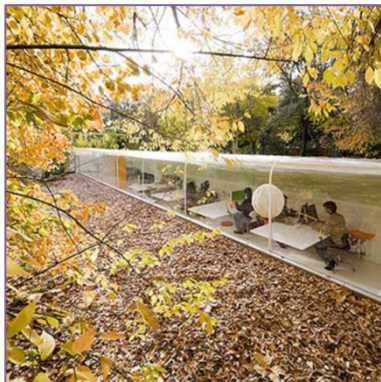
A Composition of Design Tools

3.4.4 Presence of nature

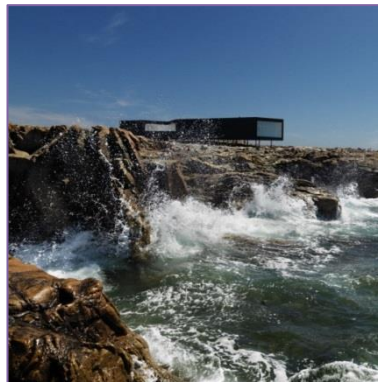
Nature seems to have the ability to calm us down and when you come to rest, so does your brain. The positive effects natural elements can have, are already discussed from a scientific point of view (3.3.2), but many of the analyzed buildings have integrated this directly within the architectural design.

It is an extension of the earlier mentioned 'visual escape' (3.4.1), which in many cases is strengthened by the presence of nature. A very effective way to make the work environment a more pleasant place. Also in this case it is both about losing yourself in your own thoughts, as well as being able to literally touch and experience it. Think about the effect of a forest walk, which people often describe as inspiring (1.1.1). Some of the reference projects are literally placed in nature, offering the ability to really take a break and walk out the door, finding yourself surrounded by all but that what is manmade.

This has a strong link with the location and often these buildings are placed outside of the city. But a similar effect might be achieved when using (the often limited) green spaces within the built environment. Adding a roof garden or courtyard is another way of integrating this, although there are no clear examples of this when looking at the list of references. But it becomes very clear what amazing scenery can do if we are able to link this to the work climate. It invites to take a break instantly and can enhance both creativity as productivity, since the setting takes away from everything that usually distracts you. An environment which can help you focus, not even remotely related to what we know as an regular office.



#19 Selgas Cano Office [Spain, 2009]



#26 Long Studio [Canada, 2010]



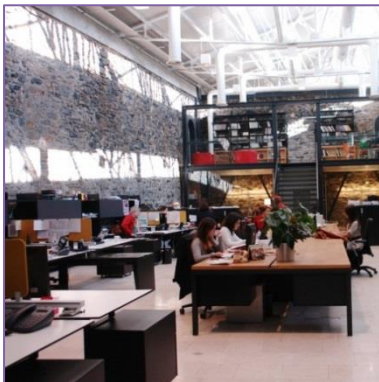
#02 Bell Labs [United States, 1962]

Another way of how designers work is to bring nature inside of the building. Many of us do this too, but in a small scale, simply by having houseplants. Just how it makes you feel better at home, it does at work. When used in a large scale, it turns the whole space into something else. Plants that reach to the ceiling, walls of natural stone and grassy areas overlooking the work stations. It does not even have to be real to have a positive effect on the people exposed to it. The mind seems to react instantly, making people more relaxed, happy and creative.

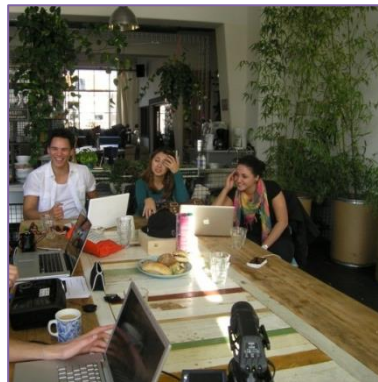
Often these elements are combined with the presence of natural light. In nearly all cases a large amount of windows is integrated in the design in either the wall or roof. The skylights bring out a very pleasant atmosphere to work in and have the additional advantage that a possible view is not limited in case of (for example) dense urban surroundings. Natural light also brings in shadows, which results in a continuously changing reflection within the space. A relatively clean room can become much more intriguing this way, with a playful setting by just adding light.

In a few cases nature is brought in by focusing on sustainability. It could be as simple as ordering biological food (often eaten together) or even growing it within the workspace through vertical farming. Knowing something good is happening around you, being present at all time and making the office partly self-sufficient by actually using it, gives a positive vibe and group dynamic.

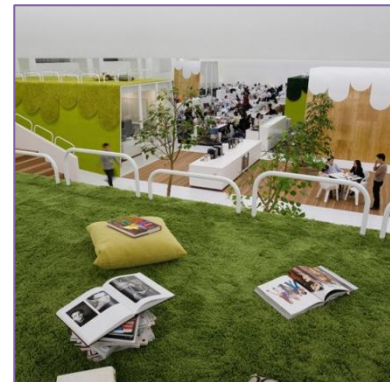
Nature is important in our lives, it makes us feel good and calms us down. We tend to look for this in our spare time, but what if we surround us with greenery at the place where we are most; work? Maybe we could enjoy this part a lot more and even like going there in our spare time.



#23 Medina Turgal DDB [Turkey, 2010]



#16 The HUB [Netherlands, 2008]



#14 TBWA/Hakuhodo [Japan, 2007]

3.4.5 Weirddness and fun

A dinosaur in the garden with a pink bird in its mouth or a room with twenty-seven doors, it certainly is unusual and a little weird; but if it is there, what else is possible? There seems to be no end to craziness when looking at recent designs towards creativity. Widening the circulations space to make room for a basketball court, pieces of grass like a maze on the floor and story high slides that connect one work space with the other. 'If we can do creative, the users must be able to do too', is what the designers must have thought.

It has somewhat of an amusement park, a place where a kid can have the time of his life. But adults seem to have no problem in enjoying themselves either. The opportunity is there, no children are around, that other guy is doing it too, so what stops you? We try to suppress the feeling, but if we are exposed to a playful environment, a part in our brain has a strong tendency to behave (again) as a child. When we get older society learns us to behave more grown-up like, understanding consequences and being productive when at work. We teach ourselves to do so, missing out on great fun and ending up in a burnout. Exactly the 'what stops you?', is what these additions to the new work environment have as a common goal. The whole day you are saving yourself from embarrassment; things you shouldn't say and things you shouldn't do. This inner critic is with you at all time to make sure no one thinks less of you. But what if you can shut down this self-sensor part of the brain and what if other people do not judge any crazy sayings that come out of your mouth?

How other people behave is hard to control, but if you are one of them and everyone respects each other, the general mentality can come a long way. If you are continuously tempted to use that slide,



#12 Spinderihallerne [Denmark, 2006]



#24 HaKa Building [Netherlands, 2010]



#15 Youtube HQ [United States, 2007]

grab that instrument, or walk over that line, you move boundaries and become more confident in unusual situations. The step towards an active role in a meeting, in which you share your crazy thoughts with co-workers, suddenly becomes very small. Also, your crazy thoughts might not be so crazy after all, but creative! And the best thing is that when your idea turns out to really be crazy and useless, making everyone laugh, it is a moment of joy by the team. And you are part of team, so laugh along and continue.

Weirdness and fun used as motivational assets for enhancing creativity, probably for many is not the worst way to spend time at work. If this is the key to opening up the restraint human mind, it might also be the answer to why children are more creative than adults (2.1.4). We teach ourselves to no longer play, to no longer have fun, to no longer be open to unusual thoughts and solutions. But now that becomes clear what makes us creative, the next challenge would be to know what to do with the ideas that 'suddenly' pop into our heads. This is the next step in the process (1.1.4), a process that has to be facilitated to enable turning creativity into innovation. The following paragraph explains more about the presence and sharing such facilities to make also this part accessible to multiple individuals.

People like to observe others and tend to obtain joy from looking at a person having fun. At the same time they will experience a strong urge to do 'crazy' too and join, where their 'inner critic' keeps them from doing so and suppresses the feeling. Where an adult wants, but probably will not actually do, a child won't hesitate and starts playing straight away. If people could overcome this fear of embarrassment, it will have direct positive influence on their ability to improve and use creativity.



#08 Palotta Teamworks [USA, 2002]



#16 The HUB [Netherlands, 2008]



#17 Google [Switzerland, 2008]

3.4.6 Nurturing environment

All 'design tools' discussed so far, are vital factors in facilitating the process of creativity. Each time however the main aim is to increase inspiration; developing, sharing and connecting creative thoughts. These examples stand rather far away from the office space as known, but also more regular facilities are needed since it still is about work. Where enhancing creativity seems to be much about informality, there is a real business side to it too.

Conference rooms, formal meeting rooms, printers, ict-help, a secretary, a place where external clients can be received; you probably only need them sometimes, but all are very useful to have access to. With many people in one building, sharing ideas, it is just as easy to share facilities. This way everything is there at all time, but since the costs are only a fraction, it becomes a luxury instead of expense. Many projects show inventive ways to implement this concept, large companies, but even more the 'incubators' that host individuals and small businesses. Some even share in the broadest sense of the word; from printers to discussion rooms and from lunch to desks. And there are more advantages to it, since people will meet more often (3.4.2) and the users as a group start to work and act like a community (3.4.8).

Also towards inspiration, more can be done if common rooms are implemented, like inviting people from outside for talks and workshops. Presentations and lectures can do amazing things with people in the audience, the one sentence might be enough for someone to solve the puzzle that has been on his/her mind for days, weeks or even years. External professionals can be asked in many more



#07 Sparkspace [United States, 2000]



#04 Thinkubator [United States, 1989]

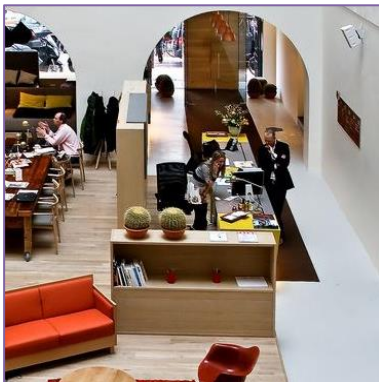


#21 YES! Delft [Netherlands, 2010]

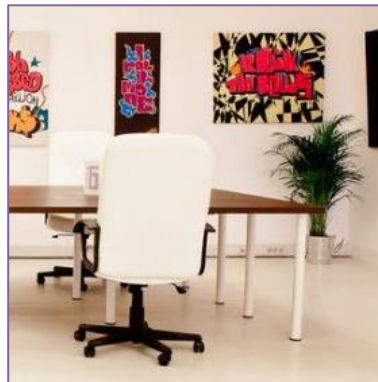
occasions to contribute to the process of creativity and innovation (1.1.3). More business related topics can be touched upon, like coaching and training for entrepreneurs, as well as possible options for funding. Many creative minds in one place, are a great opportunity for investors to find potential projects, think of network events or for example a Dragons' Den.

To get from an idea to a design, thoughts have to be translated into a product. Some people are great in creative thinking, but do not have the possibility to realize any of their visions. In only a few cases they will find a way to eventually bring their ideas to life, probably with help of an external party who does have the skill and knowledge to do so and often after many years. This makes the chance of development small and if it does happen, it is only reserved for the few. Giving the source (creative thinker) access to material and machinery through the process, can result in prototypes by anyone and in a much earlier phase. This opens up a wide range of extra opportunities and can even become an important part in the design process; thinking with your hands.

When you facilitate people with space, tools and supplies, it also is important to support them with knowledge and experience. Not only to help them mastering their inspiration into models, but also to guide them in what comes next. Great ideas, can lead to successful products, but it will only be successful with the right business plan, marketing strategy and network. Other essential things are legal support, working with patents and obviously financing. This could result in a nurturing organ, accessible to everyone, with experts the different fields, to mentor people towards a starting business. The people have to do it, but as an architect you can provide the connection of spaces that makes it all possible.



#19 Spaces [Netherlands, 2009]



#24 Workspace6 [Netherlands, 2010]



#16 The HUB [Netherlands, 2008]

3.4.7 Diversity of space

Not only each individual is unique, but external factors or different tasks make that even personal preferences change all the time. When a creative work environment is designed for multiple users, the challenge for the architect is to create a place where everyone feels comfortable in; diverse spaces for diverse people. This makes it possible to choose a space or setting that relates to either the mood, personality or the particular assignment of that moment.

It can be seen as an extension of all previous design tools together, which already represent many different spaces to be used and interpreted by everyone in its own way. However in this case the focus moves more towards the people, together in one building, working next to each other, but with sometimes very different goals. What one person requests, might be very different compared to the needs of someone else.

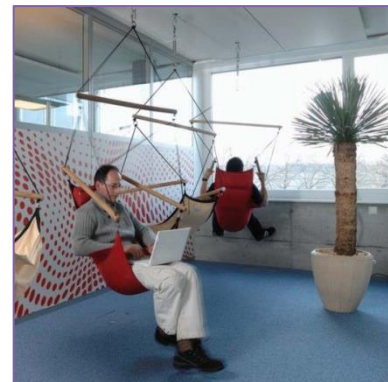
Where often buildings are reused (3.1.3), a broad variety of spaces is integrated by simple procedures like adding or taking out floors. High vs low, small vs large, dark vs light and loud vs quiet, there is no end in possible options, a list that only becomes bigger when we add the qualities that can be brought in by using different furniture (3.4.3) and links to open-air (3.4.1/3.4.4). The spaces in between have their own identities too and at the same time extremely efficient for unexpected meetings (3.4.2). Where two run into each other and stay there for a while, someone else uses exactly this spot to work for hours, being inspired by the people that walk past and interact. A self-sufficient system, as long as it is possible to start working anywhere; from bar to hallway and from garden to rooftop.



#16 The HUB [Netherlands, 2008]



#19 Spaces [Netherlands, 2009]

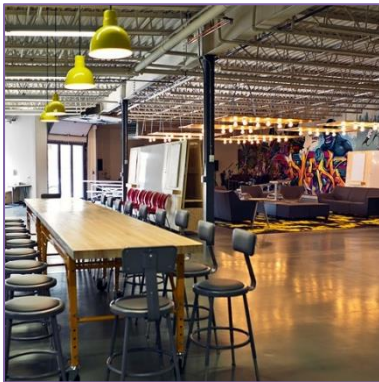


#17 Google [Switzerland, 2008]

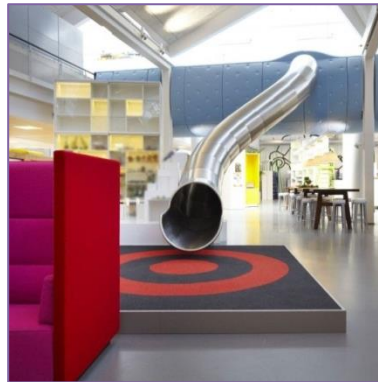
The ability to walk from one space to the other makes it also possible to get away from work within the same building. Where many might find a place somewhere else in the city, country or even world to change their scenery for new insights and better output, this creates similar advantages but without the distance. Direct surroundings can be an extend to this, like parks, water and art-galleries. This makes the building part of the urban tissue, where the diversity of work spaces spreads out even further. Having the proper facilities (3.4.6) and create possibilities to meet (3.4.2) can convert all this inspiration from individuals into innovation for many others.

Since the exact right work environment is so personal, people tend to get a good feeling out of the possibility to adjust things themselves. Moving a desk or opening up a window can result in much more productivity. But what if you can even move walls or write on them? Or what if you could change the office into a playground? (3.4.5) It is all about being able to do what you want, when you want and how you want to do it. This enables thoughts and objects to directly interact.

People get inspired in many different ways. Some need a quiet and secluded space hidden in the building, some like to watch others work, play or relax and some rather work from a hammock. It changes per individual, but also per day and per task. Offering high diversity in space makes it possible to meet all these different needs, to create a place where each person feels comfortable in and actually likes to stay.



#29 Headspace [Canada, 2011]



#32 Microsoft HQ [Austria, 2011]



#27 The Summit [United States, 2010]

A Composition of Design Tools

3.4.8 Specific qualities

Where the previous 'design tools' are based on aspects that are broadly used within the analyzed projects and can be relatively easily linked to some form of architecture and interior, some other ways of stimulating the user that stand out are worth mentioning too.

Some of the designers put much effort in integrating restaurants and coffee corners than others. Often centrally located, functioning as meeting point, with high quality food. Good food will probably makes you feel better in a literal way, giving you more energy, but it also contribute in a mental way. The taste, the way it is served, the organic background, it might even be more about knowing that you are eating well and drinking good coffee. Enjoying your meal will bring you in a state where other issues that are keeping you busy seem irrelevant for a moment, maybe unconsciously being able to connect dots from a broader perspective. The two coffee houses [#09 and #27] probably rely on this most, they all focus on organic and high quality ingredients and even sustainable interior, but another great advantage is the location. There is no need to search for a coffee house, they are right there where you are. Other creative work spaces might be hidden away, or even far outside the city center, but these flexible workspaces are always nearby. They are rather small compared to the more office like buildings and life of the sold products, a much different focus. But what if the facilities of the other projects could be brought to the location of the coffee house? An open office with the same friendly and open atmosphere, making it highly accessible to everyone. Opening hours can be adopted as well, giving people 24/7 access. Some people might be more productive in the morning, others in the middle of the night. This combined with the fact that a good idea can arise at any unpredictable time [1.1.1] and when being in the flow [2.1.1], time is – and should be - irrelevant.



#09 Metropolis C. C. [USA, 2003]



#20 Workbar [United States, 2009]



#17 Google HQ [Switzerland, 2008]

Something else that stands out are the social hubs and the community vibe they bring with them. People feel at home and part of a group, even though individuals are working on their own projects. Where this might be most important, the social interaction seems to come in first place. A pleasant environment with people that are open to any comment or insight, while others take them seriously in whatever they are working on. A place where the similarity of being fascinated in a personal way, becomes the general reason for considering others as friends, more than colleagues or even rivals. Relaxation is integrated in very different ways and maybe even most important in the way to success. Greenery can be of great influence [2.3.1, 3. 4.4], but it can also come from your chair, view, music, art, food, sport and many other things discussed in previous paragraphs and chapters. In some buildings it is integrated very literally, from the perspective of wellness and tranquility. Places to swim, get massaged or extreme lounge areas with relaxing sounds, surrounded by aquariums and chairs on which you can easily fall asleep. All distraction is taken away, creating room for whatever follows. Art has an interesting effect on people [2.2.2] and even though only twenty percent of the analyzed buildings have integrated this in a very obvious way [3.3.2], it is present in nearly all project in some way. From a literal painting, to design furniture, colorful setting, weirdness and sometimes the building itself. Unusual forms or images with historical or futuristical links, create room for imaginary art, which then can lead to an actual design or product.

All this smaller less architectural additions are very present at the coffee houses. They seem to understand their customer (user of the space) better than anyone. 'Starbucks interviewed hundreds of coffee drinkers, seeking what it was that they wanted out of a coffee shop. The overwhelming consensus actually had nothing to do with coffee; what consumers sought was a place of relaxation, a place of belonging' [Cristine Outram, ArchDaily 2013].



#16 The HUB [Netherlands, 2008]



#18 Spaces [Netherlands, 2009]



#22 Workspace6 [Netherlands, 2010]

Architecture as a binding element; An ongoing conclusion

Where the significance of understanding, facilitating and implementing creativity within business is widely recognized, there are no real guide lines for defining or stimulating it. But when looking at the outcomes of what people say, science knows and architecture does, some overlapping issues become recognizable. Research in different fields show similarities that have proven to be successful and are tried to be implemented within the built environment. This way architecture can be of great value, but it is only one of so many factors. Most important is that it brings those factors together, which makes it secondary and leading at the same time.

- 4.1 Interdisciplinary complexity* *xx*
- 4.2 Strength is in people, not in bricks* *xx*
- 4.3 The power of the empty space* *xx*

4.1.1 Towards a better understanding

Does Google understand it all, or do they just hire the right people? Is it sliding down the slide, or is the presence or even the thought of it enough? Probably people want to see and use it, knowing it is there, but does it contribute to a more creative work environment? Is it truth or believe?

An overall conclusion that can be made, looking at both scientific experiments and designed buildings towards creativity, is that most results seem to be based on how someone feels. A personal state of mind that enables you to become creative. This is something which is rather difficult to prove and even harder to design for. The access towards creativity is very individual and lies in each separate brain. It is between the ears, both literally and figuratively.

Where both researchers and designers attempt to fully understand creativity and try to enhance this 'skill' on a communal level, answers often seem to be based on a combination of partly substantiated research results and (rather obvious) assumptions. The number of papers on the topic has increased enormously over the past decade, as has the number of buildings designed towards creativity. It proves the complexity of the issue and the affinity with a wide range of fields. Research is often based on different principles, executed from various angles and can lead to very diverse outcomes. The limitations of one area of expertise can be the point where another starts, it seems to be a more multidisciplinary topic than most admit.

Mapping the results from papers, social experiments, brain scans, human experiences and building designs on creativity, could show more light on matter. A cross-reference on all outcomes, looking for similarities and interesting visions, followed by extensive additional research on better defined questions is a complicated, but more directed way in search for answers. But is it even possible to design for creativity or do we have to accept that people always will find their own 'perfect' location to work?

Questions keep arising, even after analyzing dozens of research papers and buildings. Today more is known about creativity than ever before, but maybe it is a fact that we will never fully understand it. Creativity is an elusive, but very intriguing topic, which everybody has a feeling with. Architecture can play a role in all this by creating a place where creativity can happen, but the strength is not within that what is designed by the architect, but within that what can be changed by the user [4.2].

For more details on the process of this project, please look at the additional document 'reflection and presentation' [more information on page 3 of this paper].

4.1.2 Significance of location

The London Southbank Centre is a place where people go for cultural events, good food, great coffee, amazing street performances, astonishing art, fascinating architecture, peaceful walks and the best views on the city and its people. Situated along the Thames, a wide range of diversity is present at all times of the day. It is a place where locals go for more than a lunch break or a concert, it is a place where people like to be. In the parks, along the boulevard, hidden within the buildings, they are everywhere. Often with a laptop, they occupy their own personal workspace. Sometimes every day, sometimes irregularly, some always at the same spot, some always at a different one. Fairly concentrated on what they are working on, not being disturbed by the surroundings, but being inspired. A present, but at the same time, hidden 'office' full of creative minds.

Architecture creates the place where something can happen, but the location (existing setting) plays an important role as well. Where a new building can attract people, the surrounding already does. The arts-district, university campus, boulevard and greenery are used by many creatives as work space. People are everywhere, both hidden and in clear sight, working on their laptops, walking around in search for fresh thoughts and starrng over the Thames tapping into the unconscious. The personal work space as a central element, used by all these people in their own most comfortable way.

If one addition should be made, it would not be about a building, but about bringing these people together. Giving them a place to realize their ideas and facilitating them in the process. It is much more valuable to integrate all these different spaces within the design, making the building part of a larger area, than designing a stand-alone design. A highly accessible space, which is well linked to its surrounding; area's that already meet a large part of the requirements [3.4]. The challenge is to supply that what is still missing and carefully position the addition within the current environment. Existing qualities are important, should be preserved and when possible strengthened by the new building.

Apart from the literal use of surroundings, the view is at least as important. Watching other people walking, eating, reading, playing, talking, it is what many can do for hours to clear the mind [3.4.1]. An lively location like the Southbank provides this, as well multiple scaled views on the city by looking down from a building or across the river.

For more details on the location of this project, please look at the additional document 'location analysis' [more information on page 3 of this paper].

4.2.1 User as starting point

Architecture creates the place where something can happen, but without people it is just art out of proportion. Architects have the privilege to design valuable additions for the community, but this can only be done successfully when the user is well understood. Designing a building and imagine of how it should be used after completion, gives no guarantee. It might be in line with the thoughts of the designer, but the final call is made by the user. Even if these users turn out to be a different target group than the architect had in mind. The user is not so much a consumer of the building, but more the provider of identity.

When the goal is to design for this specific user group - facilitating them in the creative process - a thorough analysis of the people is needed. Fields beyond architecture have to be studied [4.1.1] to understand when people become creative, how they react and what is required to enhance the process. It is what happens on a small scale with scientific experiments, manipulating people by changing certain factors and comparing results. But after proven to be successful, it has to be translated to and implemented within a building design. This 'positive' manipulation enables the architect to create a place which meets the needs of the user. Needs that the user might not even be aware of yet.

Stimulating creativity is an important factor, but essentially it is about enhancing innovation. When great ideas stay within one mind, never being able to reach society due to barriers that same society unintentionally built and maintains, no significant change is made. Having the idea is vital, but without doing something with it, it loses all its potential. Two means to achieve this are the presence of additional skills, knowledge and facilities as well as an environment which encourages meeting other people. Both enable individuals to develop their ideas; it merely provides the opportunity.

Meeting and interacting with people all day, is no different than speed dating. Thoughts are continuously linked, amplified, tested and matched to thoughts of other people within a community that doesn't judge, but encourages even when it is still vague, unrealistic or absolutely crazy. The result is a collective brain, made possible by the architect, but carried out by the people. Important is the ability to join this process as well as walking away from it. Personal work spaces should always remain accessible (within/around the building) and often are based on no direct interaction. Creativity is very personal, which makes individual decisions leading at any point in the process [2.3.4].

4.2.2 Architecture in the greatest simplicity

Buildings towards creativity are almost always designed from the inside and in over ninety percent the shell of an existing building is reused [3.1]. A combination of interior design, facilities and people, make it into a success, but how to design a building of which the architecture seems to be largely irrelevant? Where designers never worked on so many projects before, to provide space which enhances creativity, there are no real guide lines or prove on what really works.

But there are some design tools, generated from the reference projects, that actually can be supported by conclusions made from the scientific analysis. People do function better when they have fun in what they are doing, when they are being challenged to a certain level, when pressure is little and minds are given the ability to unfocus, supported by the people around them. But interestingly these examples still stand rather far away from architecture. It seems to more about creating a place, than designing a building.

A rather simple shape and lay-out are the result, with very few architectural elements that stand out. All design decisions provide identity, but in a subordinate role. The existing open space is retained and given to the user to use, change and interpret and the railroad that has been a great barrier becomes part of the building. Materials that are used, are based on what is found in the direct surroundings and windows are not visible from the outside, leaving a perforated wall from only concrete. A wall which exists just of straight lines, but shadow, distance and personal interpretation will make it look different at any time. It all revolves around the inner square, an open area which can take infinite appearances [4.3]. Mostly present from the inside is the structure, which is all based on functionality.

It makes architecture a means to achieve creative thoughts within people. The design is based on challenging the user to do something with the space. Without people, it is just a twenty meter thick wall surrounding a concrete floor. Precisely this simplicity lets the user free without any restrictions carried out by the architect. The wall is alluring, ones behind it is the user's turn.

The power of the empty space

4.3.1 Diversity from unity

The challenge with designing for creativity, is the personal factor. Where people share many similarities, creativity is mostly based on individual preferences and ideas arise from very different interests. This diversity in thoughts coming from the unity of human brains, is something which the building design is based on. In multiple ways 'the one' is used to create 'the many'.

Most present is the outer façade, which is based on one element, but creates an ever changing setting on many different scales. The variation of open, closed, large and small, are strengthened by the sunlight and the thickness of the elements. A second wall (2,4 meter) behind the first, visualizes the shadows during the day and lights up at night. From far away the building looks like one 'simple' rectangle shape, but when getting closer more and more detail will become visible. When seen from the adjacent boulevard, the setting of squares will be different from every angle [see drawings in additional documents].

The garages also represent unity, where behind similar doors the most diverse things happen. It is like the human brain, but the different thoughts are visualized when the doors are opened. Where today it can almost be called a cliché that innovating ideas are developed in garages, simple spaces far away from offices and universities, the stacked doors are an implication of this.

Leading in the design is the large open space. The void represents opportunity and has the potential to be used for unlimited purposes. Users are in charge and supported by two large overhead cranes, they can do and built whatever comes up in their minds. An always changing setting, from a large work area to an exhibition space and from a sporting event to a concert [4.3.2]. It is a large playground for the people down on the square and entertainment for the people watching from the surrounding building. The wall is the frame in which anything can happen, the frame of a painting, only the artists are (yet) unknown and the picture will continuously change. The emptiness provokes; guiding people by letting them free.

The building is based on a grid of 8400x8400, which is continued onto the ground level of the inner courtyard. An offset of 1200 is used for creating 6x6 meter squared items that can be taken out by use of overhead cranes. When all in place the space can be used as one big area, but this is another way of using a similar element to create diversity within the empty space.

4.3.2 Representation of opportunity

The design represents an ongoing process and changing perspectives. It is a large work place which will change daily on different scales. Two large cranes with the purpose of building and moving represent this in a most direct way. The simplicity in the architectural design [4.2.2], using sets of similar elements on all different scales [4.3.1], open up endless possibilities for personal interpretation and use. An empty space and a thought can result in anything. Ideas can be carried out in any scale and dimension.

Large events can be hosted on the square, moments when the multifunctional usability of the overhead cranes becomes visible. During concerts lights, speakers and decoration can be hung from or directly installed on the cranes. An enormous movie screen and large artistic objects as part of an exhibition can be placed anywhere in the space. The cranes are perfect elements to install permanent lighting, which can be used with bad weather or at night. Also they can be used to cover a part of the square (possible with an extra structure) or to divide the space, by hanging large canvases. All in addition to the possibilities of moving objects and building large things like statues or record attempts.

On a smaller scale the 6x6 meter elements [4.3.1] can be used to create different settings. Each can be taken out and replaced by anything else. If for example all are filled with trees and greenery, the work floor becomes an actual forest. Lifting some elements higher than others, creates a landscape and possibly the option of entering these 'new' spaces. Elements can be changed to glass, becoming a gallery, or a few can be replaced to show enormous statues. It would even be possible to create a temporary seating on multiple levels. The possibility of being able to change it to anything, will call out creative thoughts. Where the building will look familiar from the outside, the inner square will always look different.

Endless potential to make use of the openness, openness that provokes to do something with it.; the power of the empty space.