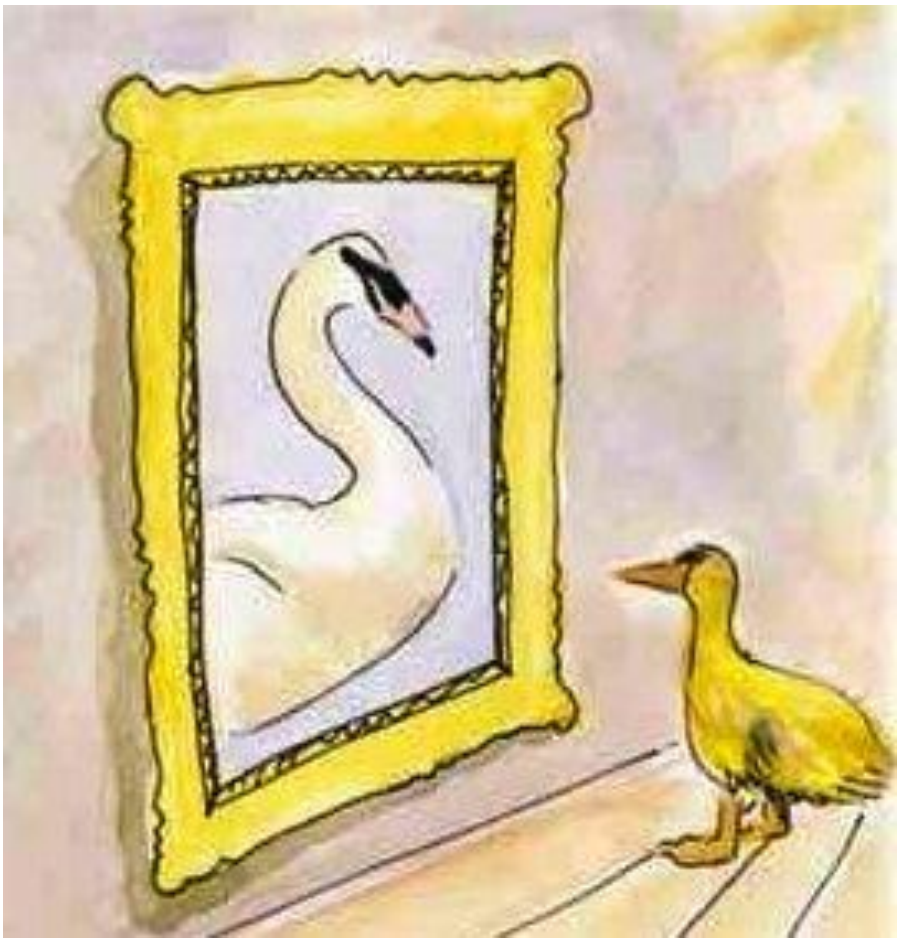


Beauty is in the eyes of the beholder

Old English proverb

Preface

This dissertation was written on the 10th Semester of the MIKE-B program at Aalborg University, and is the master dissertation from the Cand.merc. MIKE program at Aalborg University, Denmark.

We would like to thank our supervisor, Olav Jull Sørensen, and also Lene Tanggaard, who helped us with some questions about psychology in our dissertation. And thanks to Christian Byrge and Søren Hansen, who has helped us during the project and been so kind to let us borrow information about The Creative Platform.

MIKE-B, 10th Semester, spring 2010

Martin Elbæk

Christian Sørensen

Contents

Abstract

I Danmark har er været en tendens til at danske arbejdspladser er flytet til Østeuropa samt Asien på grund af de lave lønninger. I Danmark har regeringen derfor udtalt at: "Danmark skal vinde på sin kreativitet" *(Videnskabsministeriet, 2005)*. Gruppen har derfor fundet det interesant at undersøge hvad kreativitet er for en størrelse og om det er muligt at blive mere kreativ. Gruppen har derfor valgt at benytte "Den Kreative Platform", udviklet på Aalborg Universitet, som et metodisk værktøj , til at være mere kreativ. Gruppen har derfor valgt at undersøge følgende:

Er det muligt at blive mere kreativ ved at benytte Den Kreative Platform?

For at kunne besvare dette spørgsmål har vi valgt en fænomenologisk, socialkonstruktivistisk og en kognitivt metodetilgang til projektet. Yderligere har vi valgt at lave en kvantitativ undersøgelse hvor vores mål er at teste om vores respondenter er blevet mere kreative. Vi har valgt at lave en test af deres kreativitets niveau før de har gennemgået et kursus på Den Kreative Platform. Efter at respondenterne har gennemgået et tredagskursus på Den Kreative Platform, vil de blive testet igen for at se om der er sket en udvikling. Uden for dette projekts tidsramme vil der blive lavet en tredje test hvor vi i samarbejde med Den Kreative Platform tester om den tilegnede viden og kreativitet er forsvundet, faldet eller er på samme niveau.

I projektet har gruppen valgt at undersøge teorien bag kreativitet for at forstå hvad kreativitet er. Vi har dog fundet ud af at kreativitet er mange forskellige ting i forhold til hvem man spørger. For at forstå kreativiteten har gruppen valgt at se på det mentale aspekt i kreativiteten eftersom kreativitet er sammensatte tanker der skaber et nyt blend. Til sidst har vi valgt at beskrive Den Kreative Platform for at kunne se hvordan den passer i forhold til teorien omkring kreativitet.

Igennem vores projektperiode er vi nået frem til at respondenterne i vores test blev mellem 7-39 procent mere kreative efter de havde gennemgået et kursus på Den Kreative Platform. På grund af det lave antal respondenter kan vi ikke sige at resultatet er repræsentativt for hele befolkningen, men vi har observeret en tendens til at respondenterne har været mere åbne i deres tankegang efter et kursus på Den Kreative Platform. Yderligere er vi kommet til den konklusion at det ikke er alle der er lige modtagelige overfor Den Kreative Platform. Dette kan skyldes at personerne har "modstand mod forandring" eller at de er meget kreative af natur og derfor ikke passer ind i Den Kreatve Platforms beskyttende rammer.

Konklusion: Gruppen kan se en tendens til at det er muligt at være mere kreativ ved hjælp af Den Kreative Platform.

1. Introduction

Throughout most of history, the Danish people have lived and survived by cultivating the land or fishing in the sea. We do still have farmers and fishermen in Denmark; the so-called primary occupation such as agriculture, forestry, fishery, horticulture and mining of raw materials, such i.e. digging gravel and quarrying stone, but they are decreasing. Over the past 200 years we have seen a dramatic technological development; manual labour was substituted by machines, better production and new technology, which made it possible to mass-produce. Many people moved to the cities to find work in factories rather than in agriculture. The industrial Society was born in the middle of the 1800s, the railways, steamships and the development of chemical industry emerged. In the early 20th century came the car. Later again the development of electronic and industrial automation, i.e. operations are conducted without any special intervention by human hand (Undervisningsministeriet, 2007)

In the industrial society, companies produce products that can be sold due to the needs of the consumers. International competition and globalisation has challenged the Danish industry due to low cost labour in Asia and Eastern Europe. The products, which we normally produce in our industry, can now be produced cheaper elsewhere. Because Denmark is losing jobs to countries which have lower production costs we have to find new areas of expertise which can help Denmark maintain its present standard of living. Due to emigration of low skilled jobs and mass-production of industrial products, Denmark has to win on our level of education and knowledge. Denmark has to be good at getting new ideas for new products and businesses (Undervisningsministeriet 2007).

Denmark has to win on their creativity

(Videnskabsministeriet, 2005)

This statement from the Ministry of Science shows that Denmark has to evolve as a society, based on knowledge and new ideas, where employees and companies has to think out of the box and be creative and innovative in order to survive the global competition.

Traditional education is based on logic and because of our education and human biology our brains are not accustomed to thinking out of the box. Therefore, the Danish government must encourage creative ways of thinking and allow students and employees the possibility to learn new thinking patterns, that gives them the opportunity to think out of the box and be more creative.

Therefore, we, in this master dissertation, want to look at creativity and how it can be mastered. We will base this master dissertation on the idea of The Creative Platform (TCP) as a tool that allows students and employees the opportunity to think out of the box and be more creative.

2. Research question

John Kao, who is an Academic Director of the Managing Innovation program at Stanford University, said at a conference organised by Statens Center for kompetence- og kvalitetsudvikling (The Government centre for competence- and quality development) that:

> *When a soft subject like creativity can emerge at a conference on skills development, it is because the ability to be creative and create something new is essential,*
>
> *(Iversen, I.R., 2005)*.

If Denmark's only option is to build a knowledge society, and according to John Kao, creativity is so essential, is it then possible to learn to be creative through TCP? To answer that question we have chosen the following research question:

Is it possible to be more creative by using the tools of The Creative Platform?

3. Methodology

To answer the above mentioned research question the group have decided to do a quantitative research. In our quantitative research we are seeking commonalities in our test. To do this we are also seeking representativeness in our population, the methodical goal is to explain causal relationships where we are seeking a scientific identification of the objective reality.

To help us answer this research question, the group first wants to do a theoretical analysis on creativity and try to understand the aspects of creativity. We want to look at the different definitions and compare them to each other to find our own understanding of creativity. Then we want to look at the psychology in creativity to see if there is something in our brain that can block our creativity and to understand how our brain work when we talk about mastering creativity. Finally we want to analyse TCP to understand it and how it can help people becoming more creative.

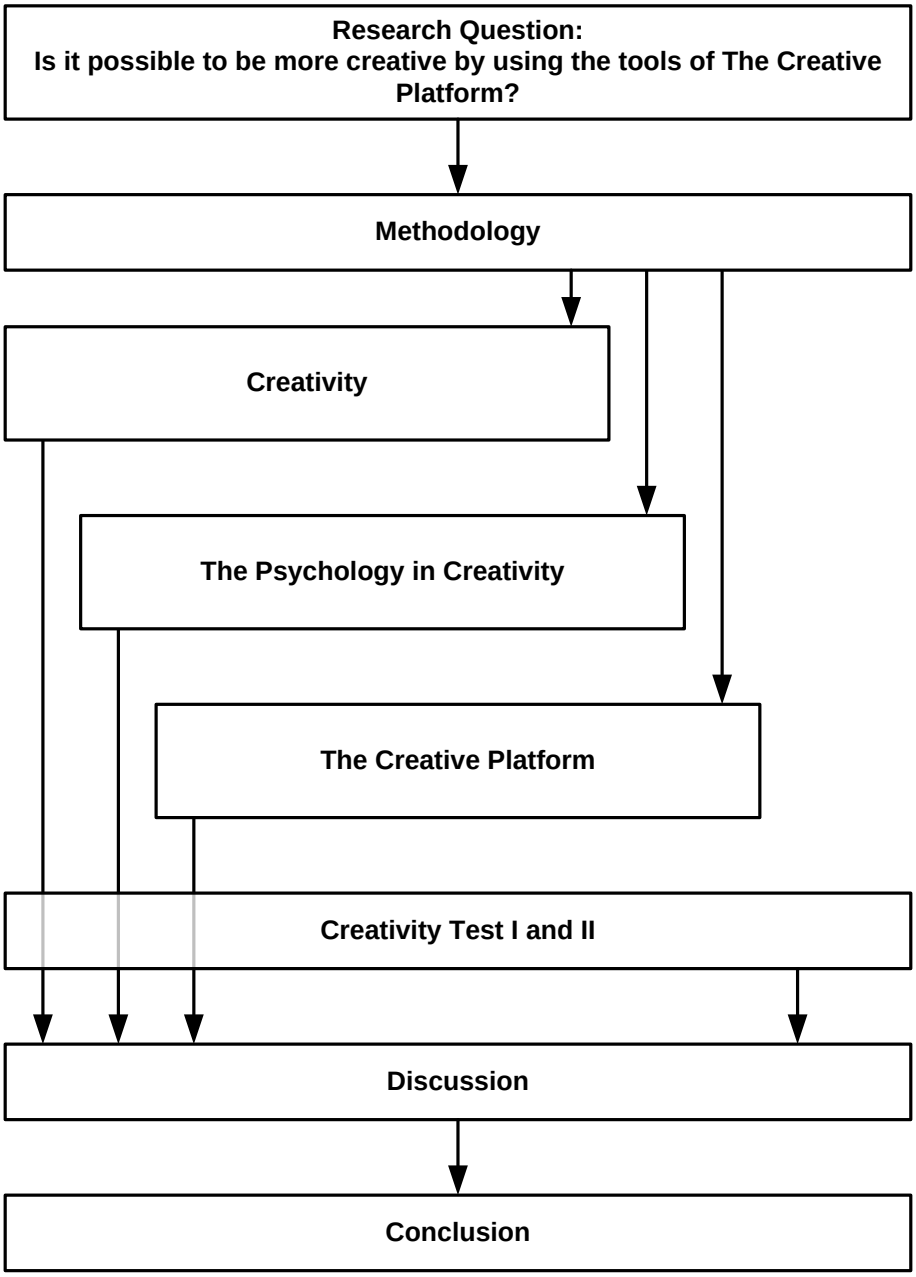
To get a before and after perspective on TCP's ability to provide a tool whereby one can manage and become more creative, we want to make an empirical study in collaboration with TCP. This study is done over a period of two months. The first study is done before the participants are given any education on TCP, in order to test their level of creativity before they are influenced by TCP. The second test is given when a full education on TCP has been given, for us to see if TCP has helped them to become more creative. A third test is given after another three month to find out if TCP has any effect on the long term memory. This test is, due to time limitations, not in this dissertation but will be used in a book about TCP.

We are testing the participants three times to see a before, after and future result to creativity. The first test provides us with knowledge about the participants´ general creative level. This is done to provide us with a base of data in order to make us able to see any development in the participants' creativity level in test two. The third test is helping us to see if the participants are still creative or if TCP is a tool that you have to practice over and over again in order to remember the tools.

The group has chosen a quantitative approach because we are seeking general relationships in our population. By choosing a quantitative approach we are also saying that the qualitative approach cannot help us answer our research question. The qualitative approach is based on interviews and case studies, where the researcher wants to understand the behaviour behind a case. We are not seeking to understand why they are being creative in the tests, in our quantitative approach but we want to see if creativity can be learned or not.

3.1 Research design

Figure 1: Research Design



Source: Own elaboration

3.2 Phenomenology

Phenomenology can be used as an approach to describe creativity. In its purest form it tries to understand the subjectivity of the observed:

> *The external world does not exist primarily in itself, but as it is*
> *interpreted or experienced by the observed person,*
> (Imsen, G., 2008, p. 25).

> *The phenomenon is like it is presented for us, seen with our own eyes,*
> *but not as it is,*
> (Zahavi, D., 2007 p. 13).

If we would accept this interpretation of phenomenology it would only be about subjectivity and the superficial. But as Martin Heidegger says, the phenomenon's has to be understood as how they show, manifest and reveals themselves. Different types of phenomenon's can appear differently in different situations, according to how it is presented. According to phenomenology, the way we perceive the phenomenon, is the only real way. There is no world beyond that and to say that there is a world that exceeds the world as we see it and that this world should be the true world would, from a phenomenologist point of view, not only be considered as a postulate but also as wrong and as a misinterpretation of concept of the real world (Zahavi, D. 2007, pp. 13-15).

This means that phenomenology can be described as an overall term for a number of philosophers and social theorists' way of thinking that takes its methodological inspiration from the German philosopher Edmund Husserl's work. Phenomenology want to capture life's intense and immediate creation of meaning, which happens in the human individual and social world of experience that would otherwise escape the objectifying way of science. The epistemology and ontology is characterised by a willingness to understand the meaning in the world of reality. That is: why phenomenology focuses on what it sees. To understand the practical reality, we cannot think about the outside world, because we have to concentrate on analysing the structure of experience, i.e. the experience and preferences of the actor as they appear in his or her consciousness. Therefore the phenomenon of the appearance has to be analysed as it is, because this shows the original meaning.

Unlike the classical subject-object distinction problem, phenomenology says that consciousness is not cut off from the world, because the field of recognition is shaped through the subject's cohesion with the world. Therefore, the description of the world depends on the manner in which the actor experiences the

given world, which is the subject of recognition. This means that phenomenology argues for an immediate and qualitative approach to the world.

When we have to understand creativity and find out if creativity can be learned, we have to involve the subject, which creativity appears to, because creativity can appear in different ways to different persons. TCP cannot be looked at objectively because beauty is in the eye of the beholder, which means that it is the subject who decides if something is creative. As Merleau-ponty says, "*The world is inseparable from the subject and the subject is inseparable from the world"* (Zahavi, D. 2007, p. 19). Within phenomenology we try to reduce the influence of preconceived attitudes, this is called epoché. Given the project's phenomenological view, comes the understanding, that the subject is creating its own reality, so the understanding of the data will only be given through their own interpretations and experiences of these. This makes it essential to distinguish between interpretations and prejudices. Prejudices are viewed as biased attitudes and assumptions, while the interpretations are considered the subject's experience of data when they appear. Bias is assumed to occur under given existensia because it is external and the known will be considered from the subject's general understanding of nature. Therefore we will focus on the essentia, which is what makes an actor or data unique, here we restricted the prejudice, because data is unique and therefore there can be no preconceived opinion.

When the group use phenomenology, our goal is to explore creativity as it is presented to us, when we use the phenomenology approach; creativity only gets understandable when it appears to us. That also means, that the data from our analysis of creativity does not tell the ultimate truth about creativity but it will appear as images of the truth.

3.3 Social constructivism

Under phenomenology we argued that we want to look at creativity as it is presented to us. In this section we want to talk about how we see the world, and if what we see are real.

Within social constructivism we say that human recognition is a social construction. This means that what we see is not something that is given to us from nature, but is something that is nurtured in us, based on our life experience. There might be some mechanism which we build up with our experience of life which affects our way to acknowledge the world (Wenneberg, S. B., 2000). This meaning that if two people are looking at a problem they will not see the exact same problem because they do not experience the same object because of their differences.

Social constructivism says that our reconnection of the reality is always a matter of the social circumstances. If we look at a glass of water, and our social circumstances are that we can be positive or negative, we would experience the glass as half empty or half full.

When we receive impressions from the world around us, we are experiencing a passive replica of what we think we see. We are experiencing an interpretation process where it is easy to be fooled and we cannot be sure that others experience the same as we do (Nielsen, P., 2006). The social construction is different from one person to another. We are exposed to over 4 billion bits of information per second, but the brain can only process 2.000 of them which mean that it is all about interpretation, because if we experienced everything at the same time we would have a mental meltdown. The brain automatically creates a social construction of the phenomenon so it will appear as something that makes sense to us. This means that in our brain it is our frontals that construct a reality which make sense to us and one we are willing to accept, explain and rationalise in a way where we convince ourselves that it is "reality". The brain processes information and create social constructions that will fit the picture, this is also known as the Gestalt-laws. The Gestalt-law says that the whole is crucial to how we perceive the parts. But if what we sense is a product of our five senses and what we see is different from what another person sees, how is it then possible to trust what we sensed?

Freud once said that: *'humans are not masters in their own house'*. Which mean, that our brain is pre-programmed according to our experiences. The brain is drawing connections to situations which we have experienced before, so when we want to take the next step we are not doing it because we decide to do it, the brain knows that this is what 'I' am used to do, so it is an automatic reaction. As P.L. Berger and T. Luckmann says, humans are inclined to create habits to follow, these habits gives the person a psychological relief which minimise the cognitive dissonance (Wenneberg, S.B., 2000).

If our mind use habits based on our experience, there is a huge chance that what we experience can be a misinterpretation of the reality because we use experience in order to describe new phenomenon's.

But what is knowledge, and how can we trust what we see? Our social reality is created through our understanding and awareness of it. It presupposes that we believe in them; they are ontological subjective. We can never gain knowledge about something which is outside our world without analysing it with our already existing knowledge.

If we look at creativity, it is in the group's belief that, we all have a base or a proto-creativity which means that creativity is in all of us somewhere, but it is not form given yet, our creativity is only given a shape when a creative idea is discovered or we start to talk about it.

To understand the brain and how knowledge and information is processed and in which world we experience it, we want to talk about cognitive approaches.

3.4 Cognitive approach

The cognitive approach is an intellectual approach that focuses on learning, memory, thinking and problem solving. The cognitive approach cannot accept that one only analyse external stimulus and responses, but believe that the internal processes in which the brain processes and store knowledge are also important.

The cognitive approach shall help us to learn and understand the brain as a machine and the brain in action (learning). When we talk about creativity some people might say 'he is born creative', because some people think that creativity is something that you are born with (nature) and cannot be learned (nurtured) as a skill and vice versa. The cognitive approach can help us understand how knowledge is learned and stored in the brain and how nature and nurture is a highly debated topic when we talk about creativity. It can help us understanding the distinction between what is common to all human brains and what makes us different to one another.

The group finds it interesting trying to understand the processes in the brain that leads to creativity and how we can open our mind and master creativity. By understanding how humans interpret, organise stimuli and how knowledge is organised it might give us an idea of how one can be creative.

When we want to look at creative cognition it is because we want to understand the processes in the brain, because thinking is based on our experience. The cognitive approach does not only look at the external behaviour but also at the internal processes such as experience, knowledge, thinking and our language which characterise the way we experience the world and affect our behaviour.

In the cognitive psychology we create some reactions based on our past experiences; these inner structures are controlling our behaviour. This means that if we are in a position where our ideas are never accepted we will, in the long run, never come up with new ideas because our thinking pattern says that we are never good enough. These patterns can be both positive and negative but they have a tendency to be self-reinforced. The actor in the cognitive psychology can change his or her behaviour through recognition and motivation. This aspect is very important in TCP because some of the four pillars which the platform is build upon and supported by is saying that we are accepting all ideas and because the actor then get a feeling of "no judgment" this will motivate him or her.

The cognitive approach will in this dissertation be used as a tool to understand our psychological behaviour on creativity.

3.5 The projects methodology approach

In this dissertation we have chosen to use three approaches in order to understand creativity, because we think that they complement each other well. In this section we will discuss them to see how they complement each other and finally we will write our opinion on how to use them together.

Phenomenology analyses the phenomenon and does not include the subject/object discussion, it tries to find a coalition between the subjectivity and the phenomenon. Hereby phenomenology does not distinguish between epistemology and ontology. The traditional epistemology within phenomenology presupposes a clear separation between the subject and the phenomenon. Because in phenomenology the crucial problem is the question of how the subject and the phenomenon are connected: How can we reach out to the phenomenon?, and how can the phenomenon appear to us? In social constructivism we also see the phenomenon as it appears to us, but the appearance is based on our social legacy. Which mean that we see the phenomenon in accordance to our experience. The basic perception of social constructivism therefore rejects the possibility of objective knowledge because knowledge is different from one person to another. The group agree with phenomenology and social constructivism in the discussion about subjectivity and objectivity. We see the combination of the question of how we in phenomenology question the connection between the subject and the phenomenon and that is solved by the perspective of social constructivism because of our individual subjective knowledge and experience. In the cognitive approach, we think based on our experience and that is why the cognitive approach is important in order to understand how we can open our mind to get access to our knowledge.

Traditional ontology in phenomenology tries to describe the reality of "a view from nowhere", ie. to contribute with an absolute no perspective explanation of the phenomenon that neither involves subjectivity or the various forms of presentation. But since phenomenology is looking at the phenomenon, phenomenology allows us to analyse the way we understand the phenomenon. The way we understand the phenomenon is again based on a social construction

More generally, phenomenology argues that the phenomenon is not only something that exists. The phenomenon appears, and the structure of its appearance is only possible because of the subject and its knowledge and experience. If we have no experience of the phenomenon we do not see it in the same way as others with the experience. That is what social constructivism can help us with by analysing the individuals experience and knowledge to explain the phenomenon. Husserl (Zahavi, 2007) argues that reality is not just something which is there and exists separately. Instead the reality exist in a system of validity and meaning, because it need subjectivity, due to experience and conceptual perspective to make it appear too us.

3.6 Qualitative and Quantitative Approach

The group wants to do research on creativity in collaboration with the TCP and the Career Centre (Karrierecenteret) at Aalborg University. The first approach is quantitative, where we test the participants individual level of creativity with an international approved test on creativity; The Torrance Tests of Creative Thinking (TTCT). We also want to test creativity in groups and to do that we have used a self created test where we want to look at the creative flow in a group. We use the same measurement tools as in the TTCT-test to secure that our data are comparable. The group test will be recorded on video and analysed afterwards.

3.6.1 The Torrance Tests of Creative Thinking

Our objective is to test if the participants have learned to be more creative by using the tools provided by TCP.

To test this we want to use an international approved test, The Torrance Tests of Creative Thinking (TTCT) which was developed by Dr. E. Paul Torrance in 1966. Dr. E. Paul Torrance, who was a psychology professor at University of Georgia, dedicated his professional life to creating tests to model and analyse the creative thinking process of persons of all cultures and grade levels.

The TTCT want the examinees to reflect on their life experience and use this in the test. This is the same method as TCP uses when they are talking about accessing ones library of knowledge to process a problem. The test is divided into two tests: one where the examinee has to think creatively with pictures inspiration and the other where he or she has to think creatively with words as inspiration. The TTCT – thinking creatively with pictures, allows the examiner to express him- or herself by drawing pictures or finishing an already started picture and then adding a title to the picture. It uses three picture based exercises to access five mental characteristics: Fluency, Elaboration, Originality, Resistance to premature closure and Abstractness of titles. The TTCT – Thinking creatively with words, uses six word-based exercises to assess three mental characteristics: Fluency, Flexibility and Originality.

For more about the TTCT-test please go to Appendix 1 and 2

4. Creativity

Creativity is a certain way of working and thinking, but knowledge is also important because otherwise you cannot see other possibilities. That is why the group do not see children as creative. Because if a child have been in Disneyland one year and you ask them where they want to go on holiday next year they want to go back to Disneyland because they do not have any knowledge about other alternatives. That is why children are not creative, because they do not know any better; creativity needs knowledge to access the "horizontal library" of knowledge to develop a creative product (Hansen and Byrge, 2010).

Dr. Edward de Bono tries in the following example to explain why knowledge is important.

Let us say that we have a man who is tied up with a rope and he has a violin. Then the man cannot play the violin. Then we cut the rope and now the man is a violinist – that is not true. It is true that if the man is tied up with a rope he cannot play the violin but just because he is cut loose from the ropes he is not automatically able to play the violin – he needs knowledge about playing the violin.

To build the framework of this dissertation we want to give the reader an understanding of how we look at creativity. There are different definitions of creativity; you can be creative as an artist by painting a picture or creating great music, but you can also be creative by inventing a new product or a new organisation strategy. We accept all these approaches as creative. Due to the scale of this dissertation we only want to look at creativity as something you will have to learn according to thought processes within the business world. According to the Hungarian psychology professor Mihaly Csikszentmihalyi who has studied creativity, creativity is:

Any act, idea, or product that changes an existing domain, or that
transform an existing domain into a new one.

(Csikszentmihalyi, M. 1997).

This means that if you have created an incremental or radical act, idea or product you are creative. Csikszentmihalyi, M. (1997) also says that one cannot make changes to a domain unless it is socially recognised. This means that creativity has to have a value to the one it is exposed or presented to. You can say that beauty is in the eye of the beholder.

Creativity = Change + Value
(Tanggaard, L., 2008, p. 15)

Creativity is a change from something known to something new with a new value; it can be illustrated in this example: a computer can merge an infinite number of ideas into new products but it cannot tell you which one of them that is the most interesting. Only the most interesting ideas give value to the observer. It is important, though, to note that the value created by creativity can be very different from an individual perspective to a social perspective. The value created is very dependent on the individual and his or her observations on the creative idea; if it creates value or not. If we use Lene Tanggaards (2008) definition on creativity we can conclude that there can be different perspectives on creativity depending on background and what you see at value. A creative idea can be new to the creator, it might already exist to the world, but the creator have still been creative and acquired new knowledge. You can call it the difference between subjective creativity and objective creativity – what is seen as creativity to the individual isn't necessarily seen as creativity to the world and vice versa.

We all know when 'the lightning strikes us' and we suddenly have an idea. Maybe we know what triggered this idea or maybe we do not, as Mikkelsen, T. (2009) says: If we want to understand creativity, we need to understand the psychology behind the creativity, because it is our psyche which decides if we accept or reject our creative idea. According to The Creative Platform (TCP), which is developed at Aalborg University by Christian Byrge Sørensen and Søren Hansen, TCP wants to promote creativity and strengthen the psyche through one of its supporting pillars: 'no judgments', because it primarily focuses on making it possible for the person who is on the platform to increase their self-esteem through a creative presence. When a person is on TCP, it enables the actors to step out of his or her daily role; by daily role we mean that the person is removed from his or her daily role where the person is in a closed mode because of the daily disturbance and the expectations to perform in his or her job or to make a mistake. This means that because we are afraid of being judged we put on a mask or does nothing, but on TCP they remove the judging and the fear of performing in front of other people, and by that the actor steps out of his or her daily role.

Through the creative process at TCP, the actors find it easier to be 'themselves', to be in an open mode, without a fake facade, and to dissolve entrenched patterns and it becomes possible to engage in new social contexts and relationships (Hansen and Byrge, 2010). In psychology, according to Mikkelsen, T. (2009), we say that everyone has a creative impulse which make it possible for everyone to be creative, but why is it then so difficult for everyone to be creative? Is it because we do not trust ourselves and our instincts or is it because we fear that our creativity will be rejected by the society? As Mikkelsen, T. (2009, p. 14) says 'How do we learn to trust our creative impulse'? In this context it is interesting to see why TCP has been successful in teaching their methods to groups and why they have yet to try to teach them to individuals.

Furthermore it is interesting that for example an artist can be creative and create an art masterpiece by himself without being in interaction with others.

This dissertations main objective will be dealing with understanding creativity and how creativity can be mastered on TCP. Because creativity is still a mystery to us, we want to have a sub-objective on the psychology within creativity, because it is in our belief that if we understand the psychology behind creativity it may be possible to get an understanding of creativity and how it can be learned.

4.1 What is creativity

In Oxford Advanced Learners dictionary the word creative is explained as: “of or involving the skilful and imaginative use of something to produce e.g. a work of art”. This goes hand in hand with the common definition of being creative, which is painting a picture, making a sculpture or writing a piece of music. But in our mind there are different kinds of creativity: the artistic form, and the business form. The artistic form is the one just mentioned, which covers painting pictures etc. The other form, the business form, is being creative in a business perspective. An example from TCP is:

In Odense, TCP have created a creative environment where six companies meet ones a month to help each other with a problem. One of the problems came from a firm which produce and sell beer. They had a problem when selling draft beer equipment to weddings in Africa and the problem was that there was no electricity in the dessert, where most weddings were held, so they could not keep the beer cold in normal ways. This problem was solved with knowledge from one of the other companies in this network who had information on cooling. So the solution was to strap cooling bars on the side of the keg and then when you then kicked on one of the bars two liquids were mixed and it created a cooling effect.

Later on, they had another problem, because the aluminium kegs were expensive and difficult to transport from the city to the dessert and back. Therefore they wanted to develop a new material for the keg ,and they had a lot of ideas. One of them was to make the kegs out of paper, but the idea was not seen as the obvious solution so they pushed the thought away and tried to find other solutions. The idea of using paper was haunting them and they decided to bring in expert knowledge on paper and its use into play so they invited two engineers, who knew everything about paper. The solution was a keg made out of paper which could handle the transportation and was easy to get rid of when it was empty.

As the example illustrate, we are interested in looking at the business form of creativity, since this is the form of creativity that TCP is developed to teach and it is the form of creativity that is related to our studies. We will therefore look into the business form in the following section.

According to John Kao, creativity is: *the ability, with the individual, groups or organizations to create new ideas, approaches or concepts. Innovation is the ability to be creative* (Iversen I.R., 2005). Kao thinks that everyone can agree that creativity is important, but those who really want creativity does not create the rooms or the platforms needed for the creative processes, and because of that they have problems with getting it done. Ernest Holm Svendsen says that creativity is defined as: *The ability to think outside the framework we normally operate within* (Svendsen E.H., 2008, p. 16), and finally Teresa Amabile from Harward Business School says that creativity is: *to produce something that is new and is usable* (Mikkelsen, T., 2009).

As one can see creativity has many faces and is a very fluid concept. In the following section we will describe what characterise a creative person.

Table 1: Overview of definition on creativity

Author	Definition on creativity	Our opinion
Dr. Edward de Bono	*"One is creative when one use lateral thinking to reasoning what is not immediately obvious and about ideas that may not be obtainable by using only traditional step-by-step logic"*	We agree – Lateral thinking is when one use knowledge from another area of expertise to solve a problem. We think it is creative when one can locate and implement a solution to a problem, because you play with knowledge and adapt it to fit your problem.
M. Csikszentmihalyi **(Psychology professor at University of Chicago)**	*"Any act, idea, or product that changes an existing domain, or that transform an existing domain into a new one"*	We agree – Once again you transform something into something new; you use your knowledge to think out of the box and sees other opportunities.
T. Mikkelsen **(Psychologist and leader of Centre of Creativity ApS)**	*"If we want to understand creativity we need to understand the psychology behind the creativity because it is our psyche which decides if we accept or reject our creative idea"*	We agree – The group agrees with T. Mikkelsen, that you have to be in a psychological state to accept new ideas.
L. Tanggaard **(Professor at Aalborg University)**	*"Creativity = Change + Value"*	We partly agree – Creativity is changes but L. Tanggaard´s definition of value is too broad because value is individual.
J. Kao **(Professor at Harward Business School)**	*"the ability, with the individual, groups or organizations to create new ideas, approaches or concepts"*	We partly agree – This definition is only that one has to create something new to be creative, but we think that there is more to creativity than just "new".
TCP **(Developed by Christian Byrge and Søren Hansen at Aalborg University)**	*"Uninhibited use of knowledge"*	We agree – When you use uninhibited use of knowledge you use all your knowledge and because of that you discover solutions which might not be obvious, but because of horizontal thinking you are able to do that. (It is more or less the same as Dr. Edward de Bono)

E. Holm Svendsen **(Cand. Mag. And external lector at Aalborg University)**	*"The ability to think outside the framework we normally operate within"*	We agree – To break out of your normal framework is to think out of the box, which can be related to horizontal and lateral thinking
T. Amabile **(Professor at Harward Business School)**	*"to produce something that is new and is usable"*	We partly agree – The group thinks: if you produce something new, incremental or radical you have used your creative skills. But we only partly agree with usable because we see usable as value to a person.
Oxford Advanced Learners Dictionary	*"of or involving the skilful and imaginative use of something to produce eg. a work of art"*	We partly agree – We agree that one is creative if one use ones imagination to produce something new, we just think that there is more to creativity

Source: Own elaboration

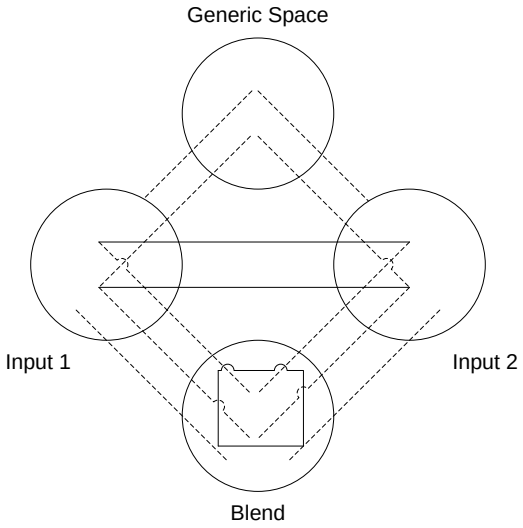
4.2 Creative persons

In this section we will describe what makes a person creative, both from a physical point of view but also from a psychological point of view. We will explain what happens in the human body in order for creativity to develop.

In order to explain creativity most people start by looking at the brain. The human brain has two forces working against each other. One force is our talent which is thinking in new, open and creative ways. This is what makes us capable of creating since we, as the only animal, are capable of imagining things that do not exist. The other force is our natural need to limit our creativity since it takes away energy resources from our main objective to function and live. (Holm Svendsen, 2008). The ability to imagine things that do not exist, originates in what the scientific world calls conceptual integration or blending. This concept was presented by Gilles Fauconnier and Mark Turner (2002) in their book: *The way we think: conceptual blending and the mind's hidden complexities.* The network model of conceptual integration consists of several *spaces* (see figure 2). The first, the *input spaces,* are the mental input spaces. The numbers of input spaces vary from case to case and they will each be a partial structure of the outcome. Next the *Cross-Space Mapping (the lines between input 1 and input 2)* is the space that connects counterparts in the *input mental spaces.* After that come the *Generic Space,* which is where the content the two inputs have in common is mapped. Finally there is the *blended space,* which unites the inputs in a blend. In the *Blend* there is an independent process that creates the blend. *Composition* of the elements from the inputs is the first step, and through this, relations that did not exist in the individual inputs, can be made available. Next,

completion brings structure to the blend. Then by means of *completion* the blend is integrated; the inputs melt into one. Finally, *elaboration* makes it possible for us to "run" the blend and imagine what would happen or what it would look like depending on what the inputs are. (Fauconnier and Turner, 2002)

Figure 2: The network model of conceptual integration

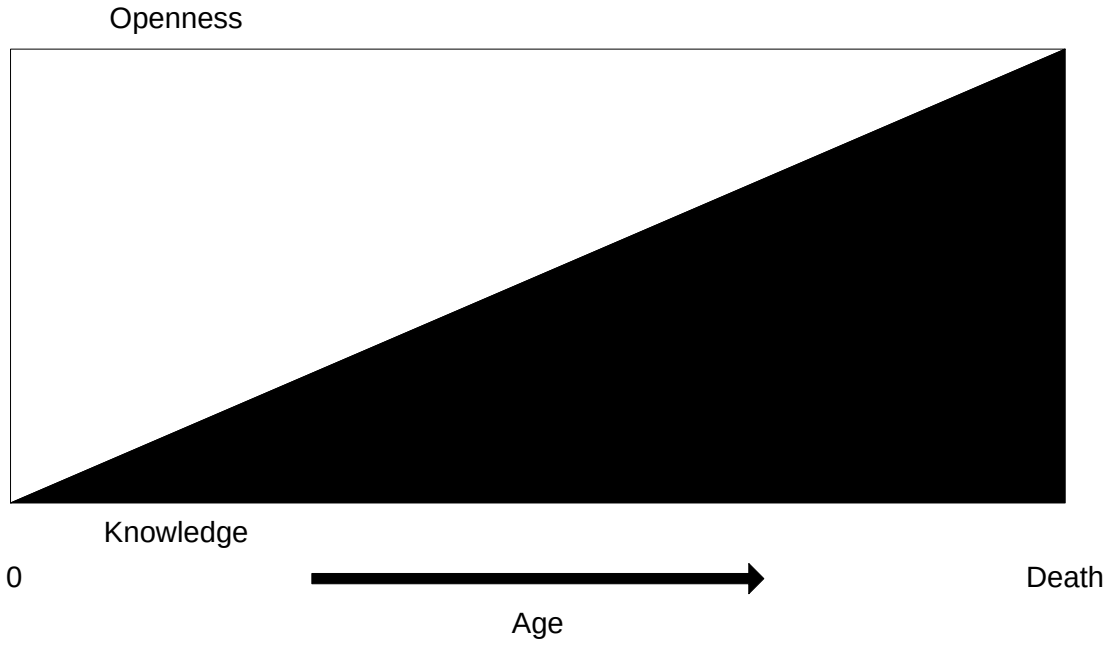


Source: Fauconnier, G. And Turner, M (2002), p. 40

Blending is when you take different input and *blend* them together to create an idea of things that do not exist yet (Holm Svendsen, 2008). This is also in line with the concept of TCP, where you use horizontal knowledge and blend the knowledge together and create something new from already existing knowledge. When discussing blending, one need to include all the parts of the thinking process: the creativity part, the experimental part, the unconscious part, the decision part, the controlling part and the awareness part. The unconscious part is by far the most effective and is many times faster than the awareness part. But even though it is very fast, it is simply not possible for it to test every possible input in the *blend*. Therefore a process must decide which inputs are selected before others. This process, known as association i.e. something linked in memory or imagination with a thing or person, builds on the brain testing different combinations in a *blend*. These are not random though, but part of a continuous process where one leads to the other and so forth. Associations are following schedules, which are present in great numbers in the human mind. The schedules are sometimes general for all human beings while others are created as the effect of inputs from the surroundings and the body´s interaction with them. Other schemes are created on the basis of your culture, language, social situation, geographical location or race. And finally others are created on the basis of your individual experiences gained throughout your life.

Our thinking process in general, changes trough our life. (See figure 3) We start out as newborns being very flexible with the ability to focus on one small thing and forget everything around us, or open up completely towards new inputs and take in several new associations. Claus Buhl (2007) suggests that we are all creative from birth, but that the creativity is often strangled through our education system (Buhl, C., 2007, s. 11). According to the fact of "nature" and "nurture" we do not agree with his point of view. We change as we grow older and we tend to focus on the safe stabile place in the scheme. A research study by George Land and Beth Jarman, shows that the ability to be creative decreases with age. Using the percentage numbers on the Danish population, shows that we each year have about 60.000 creative talents but that we end up with about 1.200 when the talents reach the age where they move away from home (Buhl, C., 2007, s. 9). One of the main reasons for the decrease in creativity is the education systems lack of creative learning. It simply does not exist. In order to explain this, it is necessary to explain the theory of "somatic marking" and to develop a figure showing what changes from when we are newborns to when we grow older.

Figure 3: The development of your ability to receive input throughout a life

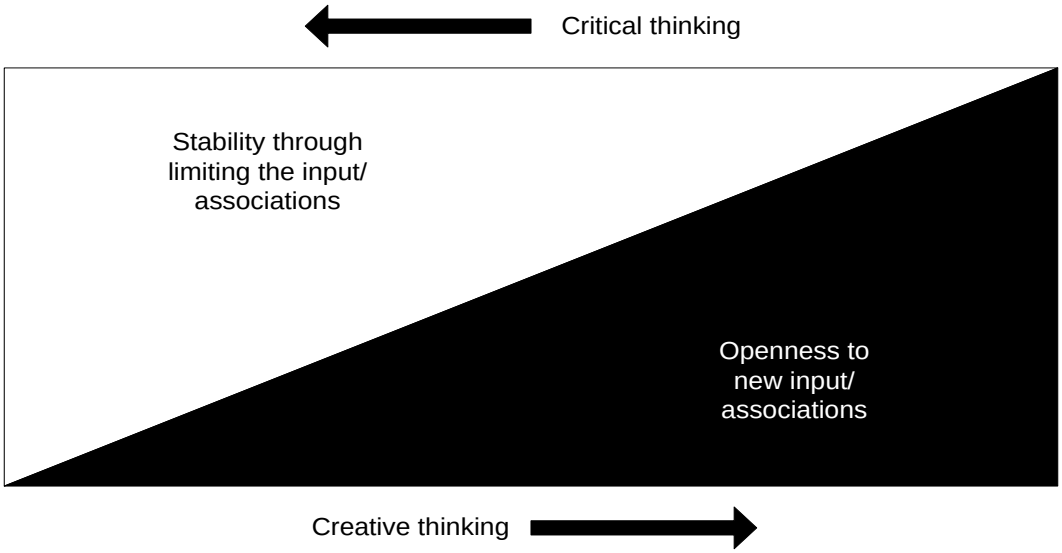


Source: Own elaboration

The Spanish professor in neuroscience, António Damásio, developed the term Somatic marking in order to explain the process when a thought or impression starts an activity in the body that sends signals through the body, which then triggers a change in the body´s condition, which is either negative or positive and directly linked to the thought or impression that initiated the process.

Our level of sensitivity to our somatic marker is crucial when we develop our blends; they can either go towards stability, which is in the left side of figure 4, or towards openness, which is in the right side.

Figure 4: Balance between openness and stability in our blending-network.



Source: Svendsen, E.H. (2008), p. 85)

This leads us back to the development our thinking process undergoes, which is explained above. Most individuals end up feeling safe and function best with stabile and measurable blends. This is mostly due to the way our society is structured – we learn to measure, weigh, prove and analyse everything in our school system and it is buried deep within us. It is more difficult to get individuals to move toward the right side of the system and hence to more openness towards new and unexpected blends.

Another important skill in order to be creative is the ability to improvise – to free your mind – a process where it is important that you let go of your presumptions and let your mind go free. This is closely related to the very essence of creativity – the process of thinking outside your normal framework or outside the box, which is the more common expression. It is important to the creative process that you are capable of thinking in new ways, because this is where you will most likely find a new and creative solution to the problem at hand.

4.3 Creative groups

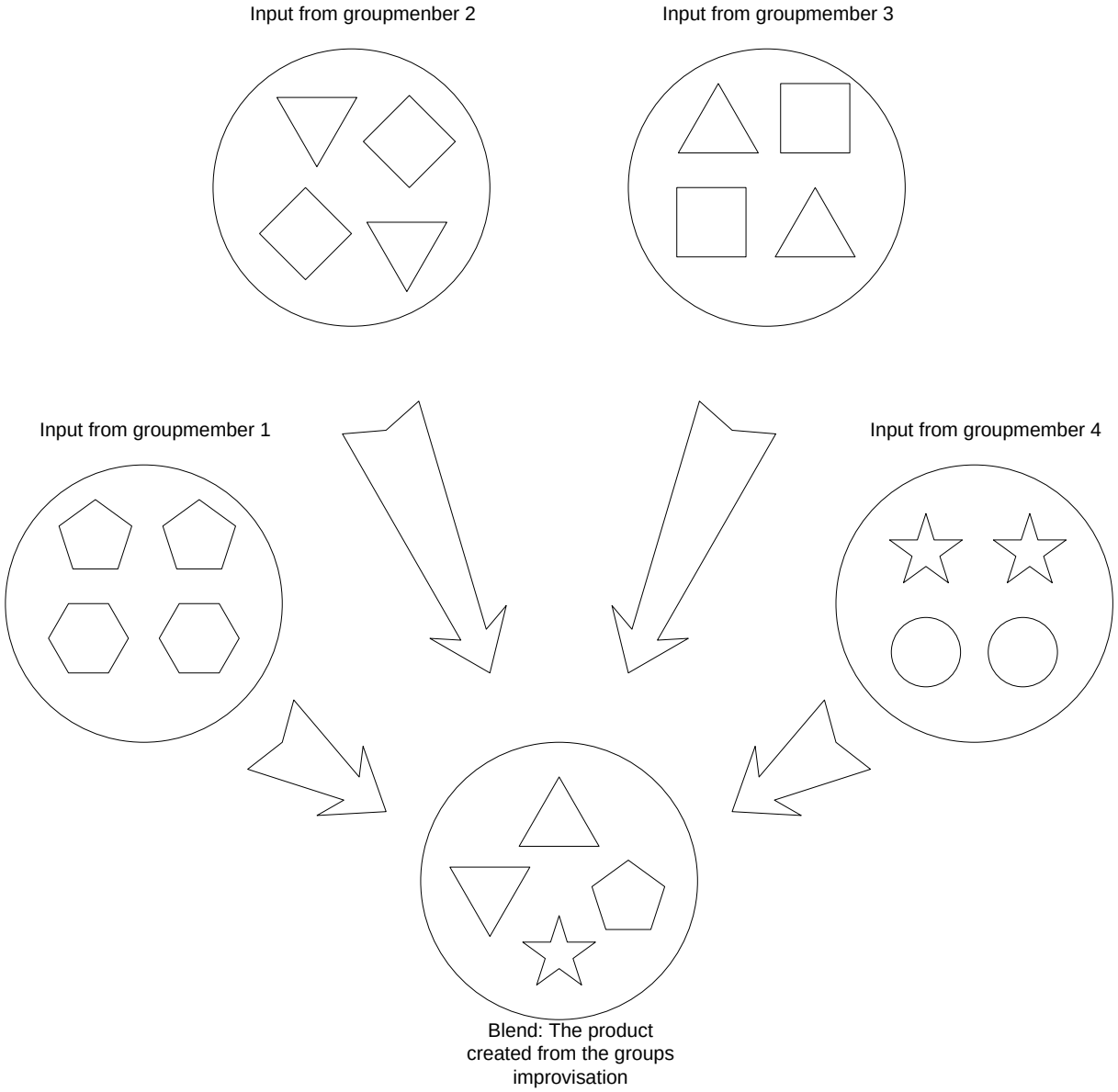
In this section we will describe how creativity functions in groups and what the main differences and possible hurdles are in relation to be creative on your own. We will also look at why TCP has chosen only to teach groups.

When dealing with creativity it is, on the one hand, sometimes even harder to steer away from critical thinking and towards creative thinking when you are doing so in a group. As mentioned above we tend to follow the safe and stabile route in the scheme, which is easier since we do not have to take as many risks. This becomes even more adamant when we work in groups, because one will try to avoid working against the stream. As John Cleese says in his lecture about creativity from Video Arts: *"But there is a danger, a real danger; if there is one person around you who makes you feel defensive, you lose the confidence to play and it is goodbye creativity"*

On the other hand creativity really spurs in groups that accept and explores this route. There will be more people coming up with ideas and one can test your ideas in the group and get feedback on your ideas. As John Cleese says: "*I think it is easier to be creative if you got other people to play with", "I always find that if two, or more of us, throw ideas backwards and forward, I get to more interesting and original places than I could ever have got to on my own"*. There are some ground rules that make the corporation function in an optimal way, though. Again we will quote John Cleese: *"So always make sure your play-friends are people that you like and trust and never say anything to squash them either, never say no or wrong or I don't like that", "Always be positive and build on what is being said"*. In essence it is important to be open to all ideas, no matter how crazy they may be, because the "crazy" ideas might lead to creative solutions that you otherwise might not even have considered. This originates in the individuals attitude, and it is important that the people in the creative group have a positive attitude and use the "Yes, and?" mentality. (Svendsen, s. 118-130) It is especially important to keep a positive attitude, especially when working within a group, since a negative attitude will spread throughout the group.

In a creative group, the ability to improvise is as important, if not more important, than to a single creative person. An example of people who need to be able to improvise in order to be good at what they do, could be a product development team. They need to be able to pick up on their co-workers inputs and adjust accordingly in order to create a blend (See figure 5).

Figure 5: A product development team improvising in order to create a new product



Source: Own elaboration with inspiration from Svendsen, E. H., 2008, p 90.

When dealing with creative processes in a group, a more diverse outcome will usually be obtained if each group member thinks about the problem alone, writes down his or her ideas and then bring them to the group. Otherwise people tend to "look-in" on the first idea mentioned in the group and it can, to some extend control or limit the group's line of thought and hence limit the creative process

Looking at the creative process in a group, it is clear that is has certain advantages over the individual's creative process. You receive inspiration from the other members of the group and that, in our opinion, is a big advantage. It is possible to "ping-pong" your ideas in the group and this way the creativity can grow and possibly reach solutions that the individual wouldn't have reached or thought of.

4.4 The creative cycle

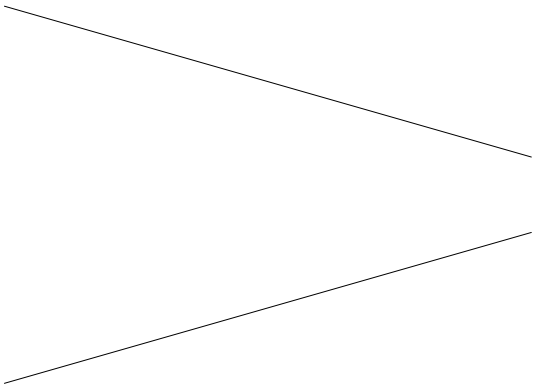
In this section, we will describe what the creative cycle is and what it consist of. We will do so on the basis of theory and practical examples.

The essence of the creative cycle is to steer out of the beaten path and start thinking creative. In this regard it is important to control the body's somatic marking, since this is where you decide to do critical thinking or creative thinking. Hence to use "known" blends that we are familiar with or to use new blends that we have little or no experience with.

In a creative process people will tend to keep the ideas within reasonable limits, but this is limiting the creative process and it might eliminate potential ideas. Who is to say an idea, that might seem crazy at first, might not lead to an idea that can be used in reality. One of the challenges in the creative process is the lack of a targeted approach, which is the normal way to solve a problem. We target our efforts at solving the problem as fast and effective as possible (this is what TCP call vertical thinking). But this targeted effort narrows down our creative thinking process and hence narrows down the chances of coming up with a new creative solution to the problem. One can divide the two different approaches into: Targeted and purposeful. Targeted being: keeping your eyes on the goal, following the plan step by step and overcoming all challenges on the way, not sensing what is going on around you. Purposeful being: staying aware of what the goal is, but not having planned how to get there. One keeps an open mind and is ready to adapt inputs that might appear on the way to the goal.

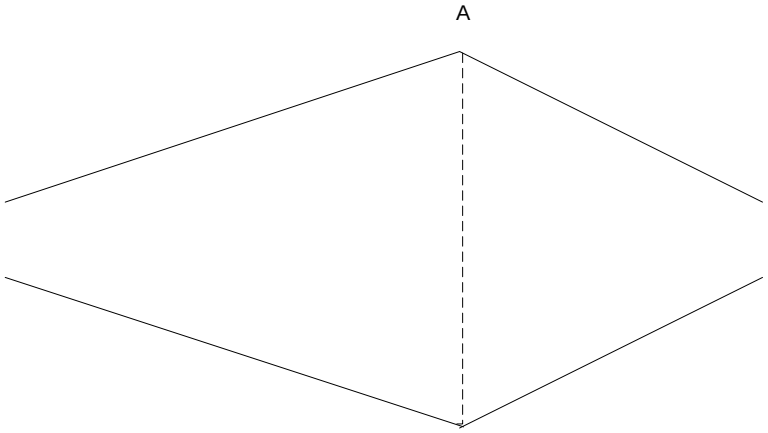
The creative process can in broad terms be divided into two phases: The critical phase and the creative phase, as shown in figure 6 and 7. A normal process will move towards a solution through the critical phase and not experience a creative phase. Whereas the creative process will start out with a creative critical phase, then move to a creative phase and then back to a critical phase. This process can go on and on until at solution is found, but the most important part is that creative ideas are allowed to be used and then "tested" through critical thinking, where the ideas are narrowed down and focused towards solving the problem.

Figure 6: "On-target" problem solving



Source: Own elaboration

Figure 7: Creative problem solving



Source: Own elaboration

Figure 8 shows that "on-target problem solving", the usual way of thinking functions like a funnel. We start out with an objective and then we narrow the solutions down until we reach a final solution. Whereas in figure 9 "creative problem solving", the process used by creative people, we start out with an objective and then through a creative process we find possible solutions which are then tested and a new creative process is started. The process is stopped only when it is absolutely necessary to have new knowledge. This knowledge can come from external persons or knowledge that you acquire.

4.5 Sub-conclusion

All in all we feel that no matter if you work with creativity in a group or as an individual; in order to be creative you have to create some sort of value in a social context. This can be both real value or in some cases disvalue. A new advanced weapon can for example be very valuable to some but it can also be seen as a disvalue to others. Is has become clear to us, that the general idea of TCP seems to be correct and that their suggested way of nurturing creativity through specific exercises does work. Furthermore is has become clear to us that creativity is a term that different lectures and experts have different views and definitions on. Some see creativity from a math perspective (Tanggaard, 2002), some from a psychology perspective (Mikkelsen, 2009), and others from a more existential point of view (Csikszentmihalyi, 1997) and finally some see creativity as something very business oriented (Kao, (Iversen, 2005)).

We think that TCP, through a mix of these lectures ideas and thoughts, have created a very functional, strong and dynamic platform on which people can work with their individual creative skills.

5. The psychology in creativity

Ideas are knowledge in work, (Hansen and Byrge, 2010, p. 25) but sometimes we are blocking our creativity. This is because the brain and the state of our mind have a huge impact on our ability to perform.

In this section, we will try to find the psychological explanation as to why we tempt to block new ideas and how this affects our creativity.

Before we can deal with creativity we need to find out if creativity is something that is "nature" or "nurture" (Sternberg, R.J., 1999). Does a high IQ mean that you are more creative? There have been studies of 1.500 children who had an IQ above 140 and they were followed into adulthood, where they were generally pretty successful. They received college degrees and ended up in high professional positions, wrote books and had publications. Now, a high IQ does not automatically give you real-world success, but great success does seem to have a connection with potential. Is creativity something that one is born with and is it only for the specially gifted people? The genes have some affect on your ability to learn, but intelligence develops different in different environments. Intelligence interacts with the surroundings and can be changed according to the stimuli. The question of "nature" and "nurture" is not if one is more important than the other, but how they complement each other, because if you have the potential and do not develop and nurture this potential it cannot blossom because it is not supported by encouragement, education and effort (Hughson and Hughson, 2004).

Brain scans of humans does not show that some people have a creative centre in the brain which is more developed than others, but it shows that a creative person have the ability to understand and use a much wider combination of the knowledge stored in the brain and connect them to each other. But how does our brain work?

5.1 Understanding the brain

The group wants to make it clear; creativity is a skill which can be learned by anyone, but some have a genetic advantage to learn. We say: that as long as you are willing to learn, everyone can learn how to be creative.

In our brain we process information; the brain is build up by approximately 100 billion neurons. Our neurons respond to the different input of information that we receive, and then they send an electric signal throughout our brain and this changes our mental stage. Because the neural activity changes ones mental stage, learning is achieved through the growth of new synapses in young brains or by the strengthening or weakening of existing ones in the adult brain. If we have a connection on a daily basis, the neuron and the neuron-transmitter create a long term relationship and knowledge is established (OECD, 2002).

The brain is building up through our evolution. Our brain is placed on top of our spinal cord, which handles our basic functions such as breathing, digestion, hunger, sexual arousal and fear. The higher brain (neocortex) is divided into two hemispheres, left and right, and this part of the brain is where "thinking" is done (OECD, 2002).

According to Ernest Holm Svendsen (2008) all humans can be creative. This is because of our advanced developed brain. I.e. if there is a cup on a table, our brain helps us see the cup and the table as two separate phenomena. Our senses register the input from the phenomena around us and blend all the inputs into something which makes sense. Our brain mix different inputs and remember them so we do not have to waste recourses on blending all the inputs the next time. Blends that are plausible or not convincing are not accepted and the blend is not stored in our mind.

Because we only accept blends that give us stability and a normal acceptance of the world, we tend to always use the known blend to describe something new.

To understand this we have to go from the cognitive level to the neurological level. A brain is developed to help its organism (our body) to react based on the information on what is surrounding the body in order to survive. Our advanced developed brain is a combination of evolutions. Our "first" brain is the reptile brain which controls all our basic senses and our survival instinct. Through time our brain has advanced and a "new" brain has been build on top of the reptile brain. This brain gives us the ability to think.

Finally, no two brains are alike; they are different in size and in the amount of neurons. And because neurons are functionally identical, the same neuron can be assigned to one task, and later on reassigned to another. This means that the discussion about nature, nurture and the ability to learn and if you can be creative, cannot be discussed because every brain is unique and is in a process of developing throughout life (OECD, 2002).

Studies have shown that the emotional stage a person is in when he or she have to learn, have a high impact on the ability to receive new information. Because of emotions humans are able to take into account the value of the information received. This means that emotions either helps or hinders the educational process (OECD, 2002).

Dr. Edward de Bono says that:

> *The brain is far too complex to understand; therefore we can never understand it.*
>
> *(De Bono, 1991, p. 54)*

So we should not analyse the individual function of the neurons but how the interactive behaviour of the neurons affect the mental activity.

We already know that the brain has billions of neurons, and that it is not the singular neuron that is important, but the chain of neurons responding to an electrical signal in the brain. When a neuron receives a signal, because it is connected to a neuron transmitter, it passes the signal along the neuron network in the brain and activates other neurons. To simplify this process we could illustrate it by saying that the signal the neuron received was the eyes telling the brain that it saw two people kissing. The neuron transmits "a kiss between two people" and this is then sent to another neuron which relates a kiss to love between two people. This neuron then transmit "love between two persons" and a new neuron then relate love between two people to something joyful, and so on. The first signal tickers a response in another part of the brain, then another and then another. This behaviour is something that we can use when we talk about creativity, because if we can get the person who wants to be creative to think in a specific way, it is possible, with the right input, to open up for his or her thinking patterns, and we have now affected his or her way of thinking. But if a neuron connection, over a long period of time, has a "bad" connection e.g a man is constantly told by his superior, that what he is doing is not good enough, or that he is not performing as expected. Then a long term relationship between a neuron and a neuron-transmitter is created. This means, that when this man has to handover a task to his superior he will always have the feeling that it is not good enough and that he has not performed as expected. This kind of connections is not something that we would prefer if we would like to enhance creativity (de Bono, 1991). That is also why TCP wants to create an environment of "no judgment", because judgment brings you into a closed mode where you cannot use your knowledge uninhibited, and then you are not creative.

This means that we have to be in a specific mental stage to be creative. John Kao talks about this in his book Jamming (1996) where he says that clearing one's mind is the key to get into a mental flow of creativity. In psychology, the term creativity, is used to explain the human behaviour of being creative (Mikkelsen, T. 2009). The human behaviour is to think different than you are used to. An American psychologist Donald W. MacKinnan (Video Arts) discovered that the most creative persons have required a facility to get themselves into a particular mood; a way of operating, which is a way for their natural creativity to function. He calls it "an ability to play". Normally, in daily life, humans are mostly in what we call a "closed mode". In this mode it is not possible to be creative, because this is a stressed mode where we have our mind thinking about "a thousand things" at the same time, due to external disturbance, which does not improve creativity. MacKinnan (Video Arts) says that creativity is not possible in a closed mode.

The opposite of the closed mode is the open mode where the person is relaxed, less purposeful, more thoughtful, more inclined to humour and consequently more playful. It is a mode where curiosity for the sake of curiosity can operate, because we are not in a position where we have to get things done quickly; we can play and that is what allows our natural creativity to surface.

MacKinnan (Video Arts) says that in the closed mode new things are irrelevant because one is not willing to accept new ideas or cannot see them. Whereas in the open mode it is a clue, which can bring you further in your creative search to a problem.

We need to be in the open mode in order to come up with a creative solution to a problem, but when the idea has to be implemented one has to change to the closed mode because we have to work with the idea effectively and diligently; we cannot allow any doubt just before we have to implement the idea. To work creatively you have to have the ability to shift between the two modes, but creativity is not possible in the closed mode.

The human brain is designed to think logically and we are taught to think this way through our educating system and that is how we create knowledge; we test if it is correct or incorrect. But in the creative mind we have chaos. According to TCP and Dr. Edward de Bono, when we use lateral thinking (Dr. Edward de Bono´s definition on horizontal thinking) we use knowledge which is not “correct knowledge” i.e. if we want solve a problem we shall not use the book in our minds library, which specifically tell something about the problem, we shall use another solution from another area, which is related to the problem. E.g. the car industry used knowledge from the aviation industry to develop brakes for cars. This horizontal approach to knowledge is seen in many industries.

In between these two areas, the personal ego is in a battle with itself about consciousness and knowledge and it is in this battlefield of chaos, that new creative ideas are generated. But if a new creative thought shall survive, we have to give up another thought (de Bono, 1991).

There are certain circumstances that make it more likely for one to get into the open mode and for something creative to occur. One cannot guarantee anything; you can sit for hours and nothing will occur to you. But to get into the open mode you need five things:

1. Space
    - You have to create a quiet place where you can be yourself without external disturbance.
2. Time
    - You have to have time to create space for a specific period of time which is more than 1½ hour because one has to allow oneself to go into the open mode. You also have to decide that for the next four hours you have to allow yourself to work and after the four hours your "normal life" will continue. A Dutch professor in psychology Johan Huizinga (Video Arts) said: *that creative people can get into the open mode by playing a game*. Play is destined from ordinary life both to locality and duration. This is its main characteristic, it is seclusion, it is limited, a play begins and at a certain time it is over, otherwise it is not play. In a play everything is allowed and you are not criticized if you are abstract in your way of thinking.
3. Time
    - When we talk about time again it is because when you have a specific period of time you should hold on to that, because the first idea you get might not be the most original idea and if you use the time which you have planed and stick to the problem you will always come up with something more original. MacKinnan (Video Arts) said: *that the most creative person is always the one who plays the longest with the problem before they try to resolve them*. Because they are prepared to tolerate the slight discomfort of anxiety which we all experience when we have not resolved a problem. And by taking a desertion we will feel better, but by tolerating this discomfort the solutions will be more creative.
4. Confidence
    - Fear of making a mistake will ruin creativity. The essence of play is an open mind. *What if we do this or this* and so on, we need to be open minded for anything to happen and whatever happen it is ok. You cannot be playful in your mind if you are scared that moving in a specific direction is wrong and is something that you should not do. Even though you are free to play you cannot be spontaneous, within reasons.
5. Humour
    - Humour has the ability to bring us from the closed mode to the open mode quicker than anything else. Humour is like an ice breaker between people.

The five points above can provide you with a base of how to get into a creative mode. But it is also important that you keep your mind focused on the subject you are working on and that you are not distracted by external disturbance.

Table 2: Summary of author's statement

Author	Authors statement	Our opinion
John Kao	Clearing one's mind is the key to get into a mental flow of creativity	We agree – If you clear your mind you are able to be creative regarding your problem.
TCP	When you are at the platform you can use your knowledge uninhibited and by that you can be creative.	We agree – By using your knowledge uninhibited you use horizontal knowledge and are more likely to find creative alternative solutions to your problem.
Dr. Edward de Bono	The brain is far too complex to understand; therefore we can never understand it.	We agree – We shall not look at the individual parts but try to have a more holistic perspective.
	You have to use lateral thinking to be creative	We agree – By using and merging knowledge from different areas, new solutions will occur.
Donald W. MacKinnan	To be creative you have to be in a specific mood; "an ability to play".	We agree – To be in an open mood/mind gives you an ability to accept things that you would not accept in a closed mode. When children are playing they accept the rules of the play.
	Creativity is not possible in a closed mode	We Agree – You cannot see the opportunities.
	You have to switch to the closed mode to implement something	We partly agree – In some situations you have to switch to the closed mode in order to see if it is possible, but if you are still in the open mode when you implement something you can still make changes if something else seem more obvious.

Source: own elaboration

We agree, that the person who has to be creative, has to be in a specific mental stage to be creative, by saying that we also agree that one cannot be creative in a closed mode. MacKinnan (Video Arts) says that you have to switch to the closed mode to implement something. We only partly agree with that because even when you have to implement your idea the creative process does not stop. You always have to be open to new alternatives but you can switch to the closed mode to collect information about a subject when you have to think vertically.

It seems that one have to be in a certain mental special stage before one can be creative. And in the next section we will look more into the importance of different mental stages.

5.2 Mental levels

When Sigmund Freud said: *'humans are not masters in their own house'* he meant that humans only know a tiny bit about their own mind and how the processes in their brain work. We can divide our thoughts into two parts, the thoughts we are not aware of: the non-conscious, and the thoughts we are aware of: the conscious. And it is the non-conscious thoughts that are interesting when we work with creativity (Mikkelsen, T., 2009).

When we are born we are exposed to a constant flow of different impressions to our five senses and we cannot diversify them from each other. All these impressions are mysterious and are translated into fantasies about the surrounding world and put into a play about the world. The child uses its creativity to set up a fantasy world, but because of the missing ability to understand and differ between the different impressions, the child is drawn to process and understand the impressions. The human mind has a need to understand the world that we live in, and this ability to understand the world and to give our surroundings a meaning, develops from childhood to adulthood. In order to understand the world, the child relates the impressions to symbolism. But as we age we do not allow confusing meanings about the world and we become more rational and automatic in our way of thinking. We automatically move the things that we do not understand or things that are too complex to our unconsciousness. We start to understand that all the impressions are not a blurry fantasy world; that there is a reality out there that the ego has to adapt to. The child starts to understand the differences between fantasy and reality and the child has then discovered its ego. When the child starts to understand the difference between fantasy and reality it also develops a defence mechanisms which rejects the fantasy world and send it to the child´s unconsciousness. The defence mechanism in our unconsciousness troubles our creative ability because we are not used to accepting something that we know is wrong. If we could let go of the defence mechanism and open up, we would understand the world differently and see the new perspective which can change the perspective of the old idea and create a new reality or a new creative product (Mikkelsen, T., 2009).

5.3 Mental blocking to creativity

We all know that when we are not able to be creative; we say that there is a mental blocking. The psychology can help us understand why we get these mental blockings.

A blocking is when one is not able to be creative. These blockings can last for a short or a long period of time depending on the level of our mental disturbance at the moment. The mental blocking can occur because we cannot see any idea in the creative process we are engaged in at that moment. But at the same time we cannot let go of the idea because we have ownership of it due to the period of time we have worked with it. In order to break out of the mental blocking mode and get into a new creative mode, we have to be open and search in other directions and if necessary let go of the ownership of the old process, this is also in line with Dr. Edward de Bono (1991, p. 37). At this stage, we have a feeling that we are not ready to move on, and that is why the mental blocking occur (Mikkelsen, T., 2009). Then we need to take a break from our process and let the idea incubate in our mind and after a while it will return and we can work with it again. The problem occurs if we do not trust that the creative mode will return or that we cannot finish the problem within a specific time. We then start pushing ourselves to a solution and the result will not be as original as if the idea had had time to evolve and the inspiration had come by itself (Mikkelsen, T., 2009). A mental blocking is not when one have to take a normal break and let the thoughts get new inspiration, it is a stage where one have a mental limitation to work and to be creative. If this stage, over time, becomes the dominant way of our life we automatically become more negative and afraid of new ideas and we will only accept the already known and proved ideas. Creativity exist somewhere between what is real and what is fantasy. It is in the fantasy-world that our inspiration from the unconscious is turned into creative products when it meets with our knowledge about what can be done. Too much fantasy makes you lose track of the real world, and too much reality makes us block ourselves to creativity (Mikkelsen, T., 2009).

The anxiety within creativity will always be there, because doing new things will always frighten us. Freud said that people will always be frightened when they feel extradited; we fear losing face and that our knowledge or idea is not good enough; to lose power. When we are creative we also loss control and are frightened of what might come, and the amount of loss of control one can stand, differs from person to person, and it is dependent on one´s mental strength. That is also why, when we get a mental blocking we turn back to known territory because fear is related to experience, but if you only do things according to your experience you will never discover something new (Mikkelsen, T., 2009).

5.4 Memory

Memory is defined as the ability to consciously retrieve an earlier experience or information that you have gathered earlier in life. Scientists describe the human brain as consisting of three memory systems that work together to help us learn and recall. First is sensory, which is everything that our five senses perceive (the first two seconds), next is our short-term memory, (also known as working memory) which gathers new information, for instance events that we just worked with. Whereas the third, long-term memory is the accumulation of information that we have stored over the years, information that first made its way through the short-term memory system. The information in the short-term memory must be consolidated or encoded into long-term memory if we are to hold on to it.

Short-term memory and long-term memory have different properties. Most of us can hold seven (+/- 2) thoughts in our short-term memory but not more. I.e. a person can remember the following eight numbers 18649506, and especially if he or she categorise them 1864, 95 and 06 but most of us will have trouble remembering for example the following ten numbers 8463729057. Unless you constantly rehearse the list of numbers, you will quickly forget them, since it is not encoded in your long-term memory. With short-term memory, once you have forgotten something, it is lost forever.

However, with long-term memory you might think you have forgotten something and yet find that some hints help you reconstruct a memory from for instance high-school. Moreover you can store all the amount of information you want in the long-term memory, without removing old memories to make room for the new.

As mentioned above, you will forget the numbers unless you rehearse them. Researchers however, have found that simply rehearsing something in short-term memory is no guarantee of forming a long-term memory. For instance in high-school you might have spent hours remembering facts for your history test and now you cannot remember any of them, however we all remember what we were doing on 9/11 or something else which stand out in our minds. This is because we store information and events that are meaningful and/or emotional. This is called flashbulb memories. So the meaningfulness and emotionality of events enhance the encoding of memories (Comer, R.J., 2001).

The group also find long-term memory interesting, because when you get mentally blocked you will have to let go of the project for a while and the project stores itself in the long-term memory. There it will be processed by ones sub-consciousness and then brought back to ones working knowledge when is has matured. We would like to draw a figurative link to a “lava lamp”. The lava lamp is heated up by a light bolt which is seen as our brain activity or our way of processing knowledge. The “lava” is our ideas, and when

our ideas are heated up they will surface. At a certain time the ideas loses heat, we get a mental blocking and the idea falls back into our sub- consciousness and like an incubator it is given heat to evolve and when it is ready, it will automatically come back to the surface when we find new energy to work with them.

Certain brain structures appear to be especially important in our memory. Among the most important structures in short-term memory are the prefrontal lobes, located just behind our forehead. When we acquire new information the prefrontal lobes become more active. This activity enables us to hold information temporarily and to continue working with the information as long as it is needed. Moreover especially the hippocampus is important for storing long-term memories. If the hippocampus is damaged you will have trouble forming long-term memories and trouble retrieving long-term memories of events that occurred shortly before brain damage.

Suppose you lost the ability to form long-lasting memories. You can remember what you just did and what someone just said to you, but you remember nothing of what happened earlier. It is as if you have just been awakened from a long sleep. Life without memory is very unlike life as we know it – it is almost no life at all. Indeed it is totally impossible to learn and retrieve knowledge (Kalat, J.W. 2001).

5.5 Sub-conclusion

We now know, from the psychology in creativity that a high IQ does not automatically mean that you are creative; everyone with an open mind has the opportunity to be creative.

Because we have a highly developed brain, we have the ability to blend different inputs and create new outcome. We just have to allow ourselves to get into an open mode where our creativity has the ability and potential to blossom. The group agrees with the five things that have to be present to get into the open mode; space, time, time, confidence and humour. It is absolutely crucial that you are in your open mode when you have to be creative, otherwise you will have a blocking and you will go into a closed mode and cannot be creative.

What is new to the group is how we store our memory. Because we say that ideas are knowledge and memory in use, it is important to understand how a person learns and how to get access to that knowledge. This is also very important when a person is on TCP. It is crucial to know this in order to give the person new knowledge in terms of being creative. Furthermore TCP also needs to access the knowledge the person consists in order to solve the problem.

6. The creative platform

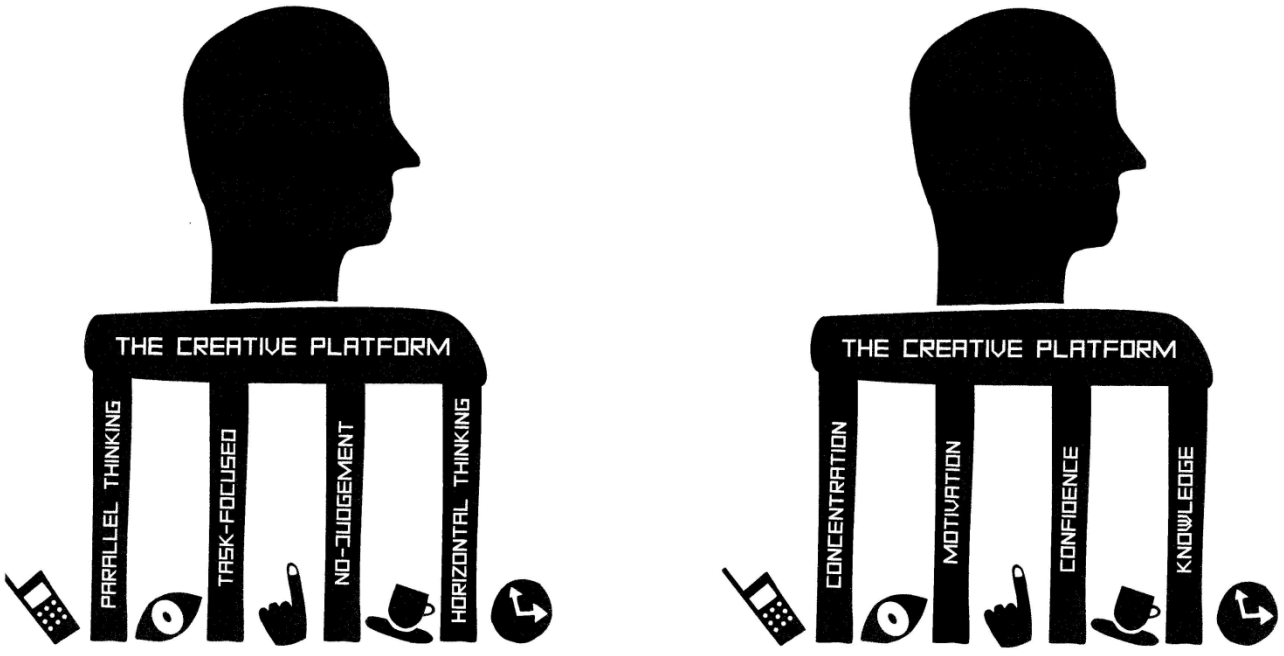
The Creative Platform (TCP) is developed by Christian Byrge Sørensen and Søren Hansen from Aalborg University.

TCP´s main objective is to develop creativity within a person, where the person reprocess comfort, concentration and motivation which is important to be able to break out of the daily roles according to professional, social and cultural habits which restrain them in their creative performance to use their knowledge uninhibited and move into a stage of creative flow.

The creative platform is a platform where the actor can be creative by using his or her uninhibited use of knowledge. But before you are able to make use of your uninhibited use of knowledge you have to build the platform on four pillars. The four pillars are:

1. Horizontal thinking (Knowledge)
2. No judgment (Confidence)
3. Task-Focused (Motivation)
4. Parallel thinking (Concentration)

Figure 8: The Creative Platform



Source: Hansen and Byrge, 2010

The four pillars of TCP tries to create an environment where the persons on TCP receives the needed comfort, concentration and motivation to engage into an open prodigious free relationship where they can use uninhibited use of knowledge (Hansen and Byrge, 2010).

Normally the human brain is taught to think vertically, which mean that we reflect on the knowledge we have within the area in question. This means that if we have to wash our dishes we use the book from our "library" (knowledge) about dishwashing, to solve the problem. This does not give us any alternative (creative) ways to handle the dishes, so we will use the same method to solve the same problem over and over again. We cannot be creative, because we use old and already invented knowledge (Hansen and Byrge, 2010).

6.1 Horizontal thinking

The principle of horizontal thinking is to use knowledge from different areas of expertise and use the principles in other contexts, which open new possibilities. A continuous use of horizontal thinking gives the actor the ability to use his or her knowledge uninhibited, which will then lead to more creativity (Hansen and Byrge, 2010).

To understand the complexity of the uninhibited use of knowledge, it is important to emphasize, that an idea is nothing but knowledge constructed for the occasion. An idea can only be based on the present knowledge (Hansen and Byrge, 2010).

The idea of horizontal thinking is that the solution to your problem is already invented, but that it is located in another place in your memory which you normally cannot recognise because you cannot see the obvious link. Horizontal thinking creates new mental transformations of knowledge because it uses knowledge from different areas of expertise and combines them into new creative solutions. According to TCP, horizontal thinking is important if you want to create new ideas (Hansen and Byrge, 2010).

There are generally two things you must be able to do if you want to think horizontally: the first is you have to be able to work with knowledge as principles; the second is you have to be able to jump around between various books on cross-sections in your "library" (Hansen and Byrge, 2010).

When TCP talk about principles they think of associations such as: what are the principles of a shoe? Principles shall be understood as isolated knowledge about something. Because we have trouble translating one principle to another area of expertise, our mind is locked into patterns which are hard break out of (Hansen and Byrge, 2010). Dr. Edward de Bono also uses principles in his creative work. If he has a problem he uses random words (nouns) to get new input to his problem, these inputs shall be seen as principals

which one can transfer as a solution to ones problem (de Bono, E., 1992). It is important to say that Horizontal thinking does not want to out conquer vertical thinking, but shall be seen as a supplement in order to open new perspectives and opportunities to a problem (Hansen and Byrge, 2010).

To jump around various sections in your "library" is about responding to a stimuli and use the knowledge that you have. Stimuli always exist in constant interaction between people and their environment. Stimuli can influence a person through their senses: sight, hearing, feeling, taste, smell. Any stimuli could potentially launch an association that causes the person to use particular information from his or her "library". Humans think in patterns and it is these patterns that make it complicated for us to move from one kind of knowledge to another (Hansen and Byrge, 2010).

According to TCP, it is possible for everybody to learn how to be creative. To a trained person, horizontal thinking is something that will happen automatically. When the actor receives stimuli it automatically opens his or her "library" and the knowledge will flow across sections of principles and practical experience. The horizontal open-minded person has an ability to apply all his knowledge to generate the ideas which are needed in a given situation. They say that he or she is creative.

But before we can use horizontal thinking we have to use one of the other pillars, no judgment, to bring the actor into a stage where he or she can use his or her uninhibited knowledge.

6.2 No evaluation

The actor must not, at any time, feel any judgment or be given any evaluation. If the actor is evaluated on his or her performance the objective is moved from focusing on the task to focusing on the person. This brings the actor into a defence mode where his or her arousal level will increase and their creativity level will decrease. When the focus is on the actor, the actor will respond and only say and do what he thinks is the "right" thing, according to others' expectations. The actor will then have problems being creative because he or she cannot use knowledge uninhibited (Hansen and Byrge, 2010).

Humans are filled with fear of being evaluated or judged by others. That is why TCP wants to build up a level of confidence, a confidence to be oneself and not put on a mask which fits the situation. If we are not ourselves it will limit our creative behaviour and we are then bound to a fake social construction. Humans are often bound in what we call cognitive distortions. This is a situation where we are afraid to be ourselves, because we are afraid of what others might think about us, and because of that we are not willing to share our ideas with others, we keep them to ourselves. That is why "no evaluation" is so important on the creative platform, because if the person is brought into a stage where he or she feels that

there are no evaluations, no judgments and no hierarchy, everybody is equal and all ideas are accepted, the actor opens up and can use his or her uninhibited knowledge and think creative (Hansen and Byrge, 2010).

Evaluation and motivation goes hand in hand. Normally we get evaluated on our performance and we might get a reward (motivation) for our hard work. TCP operates only with intrinsic motivation which is when the actor performs on his or her own action, and is motivated because he or she finds it interesting. Extrinsic motivation, which is when you get a reward for doing a job, will kill the creativity, because you will only reach the performance equal to the expectation level to get your reward and because the result relies on a subjective opinion, you will follow the mind of the evaluator and you cannot come into a flow of creativity. The extrinsic motivation will also give the actor a feeling of ownership over his idea and the choice of ideas relies only on who has the best argument to follow his or her idea, and a standard solution (which is a bad choice) might be chosen over a new innovative (risky) idea.

TCP says that evaluation has many faces. If we are being evaluated there is a fear of being foolish, fear of failing, fear of wasting time, the fear of losing power, fear of being considered as strange, the fear of thinking the “wrong” thoughts, and so on. All this will lock the members of the group into already known patterns and they will never engage a hundred percent. Some thoughts are never thought, or we will not give the thoughts any credit and they will never be considered as a possible solution to a problem. And if we finally see the “forbidden” thought, we will not present it, because of what other people might think. Real confidence, however, creates acceptance among people in the broadest sense and opens up to the world of possibilities that lie outside the patterns we normally subject, when we are thinking or working with others. It is an expectation of control, prejudices, routines, and similar assessments from others that is creating these thoughts that are so damaging to the creative thinking (Hansen and Byrge, 2010). All this is destructive to the creative process on TCP.

It is important that there is no evaluation of ideas on TCP. When you get an idea, it is accepted even if it is not possible. Ideas are like stepping stones which allows us to come from one idea to another. An idea is knowledge that is used in a specific situation and therefore it can be combined with another idea and create a new idea. The same concept as we worked with in blending. Ideas are also just ideas; that is why you have to put your idea away and find a new idea, because if you stick to an idea to long, you get ownership over the idea and then you are automatically locked and your creativity is inhibited.

6.3 Task focused

When TCP talks about having task focus, they mean that if there is no evaluation it is possible to devote yourself to the task. You also have to be motivated, because if you are not motivated you cannot really devote yourself. Again, here it is the intrinsic motivation which is the best solution, because extrinsic motivation adds another focus on the task and you are not devoted by heart.

It is a critical thing on TCP that you are focused on the task, because external disturbance will replace your focus from your first objective and you cannot be concentrated and devoted on being creative.

When an actor is given a task, he or she automatically reconstructs it to fit his or her subjective view of the problem. In a given session where more than one person is working together, there are multiple subjective opinions on how to solve the problem. That is why TCP only works with one focus point at the time, because if we work with more than one problem we are not parallel in our thinking (see chapter 7.4 Parallel thinking6.4 Parallel thinking) and we will be distracted in our focus. In other words; all the energy is used to find out which objective we are looking at, at the moment. Why is this objective better than the other one? Why is my opinion more valuable than yours? Because TCP only works with one task at the time, all the participants are focused on the same objective (this is called parallel thinking) and all the energy is used to solve this one problem. There is a minimum of discussions because it is difficult to discuss something if you only have one option (Hansen and Byrge, 2010).

To create focus on the task one has to do the following two things, according to TCP.

1. The actor shall only work with one problem at the time. If there is more than one actor they have to work parallel on the same problem, because if they have different objectives they will have ownership of their own problem and have difficulties understanding the importance of the other objectives. There will also be social interactions such at talking about other things, discussions and breaks, which will create a negative spiral, which will remove the focus on the task and they will not be in a flow.
2. One should never focus on the other actors' looks, knowledge, name, seniority or behaviour, because these inputs are considered as external disturbance and will affect our behaviour towards other persons. This is also related to chapter 6.2 No evaluation. Here it is important that the person, who is in charge, always make sure that the group is instructed to have the same focus. The person who is in charge always have to make sure that the group is focused on the same task, that there is no evaluation/judgment and that they think parallel and horizontal.

When a group of actors are given a problem to solve and the problem is too difficult or comprehensive they will lose focus because they will start to discuss if the problem is relevant, all the aspects of the problem are discussed at ones. That is why simplicity is important; if a problem is divided into several sub-problems and only given to the group when the previous problem is solved, it will occur as a simple and easy problem because we have focus on the task (Hansen and Byrge, 2010).

6.4 Parallel thinking

Parallel thinking is when all actors have the same focus at all times. By using parallel thinking, you avoid the pressure of evaluation and everyone is focused on the same task and this will enhance the creative flow.

Parallel thinking is a principle that allows people on TCP to be a hundred percent appointed to the task. During the day we get a lot of different inputs and if we cannot block these inputs they will disturb our thinking. As mentioned earlier it is said that the human mind can only control seven (+/- 2) thoughts at the time in our short term memory. That is why our focus can easily be disturbed if we do not block external disturbance from mobile phones, e-mails, persons knocking on our door, and so on. It is also said that humans have a memory span of two seconds, which means that we have to be concentrated and devoted to the task we are working with, for us to lose track of time and get a feeling of flow. The disturbance that one feels, will move the objective from the task, and the actor will be un-concentrated and will not put as much value into the work of the task (Hansen and Byrge, 2010).

In school and in our democratic way of living we are all taught that discussion is a good thing, but discussion will create a disharmony. Because when you are in a discussion, people are positioning, arguing and trying to persuade others to adapt to their idea and we are then moving the perspective from parallel thinking to "I am right, you are wrong" which we would like to call "asymmetric thinking".

If you remove the entire non-relevant disturbance it is easier to be mentally present, all thoughts about the past and the future will disappear and everyone in the group can now use all of his or her power thinking about the same thing – thinking parallel (Hansen and Byrge, 2010).

6.5 3D cases

3D cases are exercises designed to change the mental and physical mindset of the person who is on TCP, in order to make it easier for them to engage in a creative process. The 3D cases are also "energisers", which is settings where ones energy level is raised through a little playful game. 3D cases are the foundation to let the person accept the rules of the pillars and bring you up on TCP. A process consists of a series of 3D cases which are used to build a platform where participants are able and willing to use their knowledge uninhibited in relation to their professional, social and cultural backgrounds. 3D cases also train the

participants in horizontal thinking and prepare them for the next process, because of the two second time span (see 6.4). A process is therefore an interaction between the 3D cases and shorter workflow. The 3D cases also create a social environment where the persons on TCP can be open minded and stay in an open creative mode.

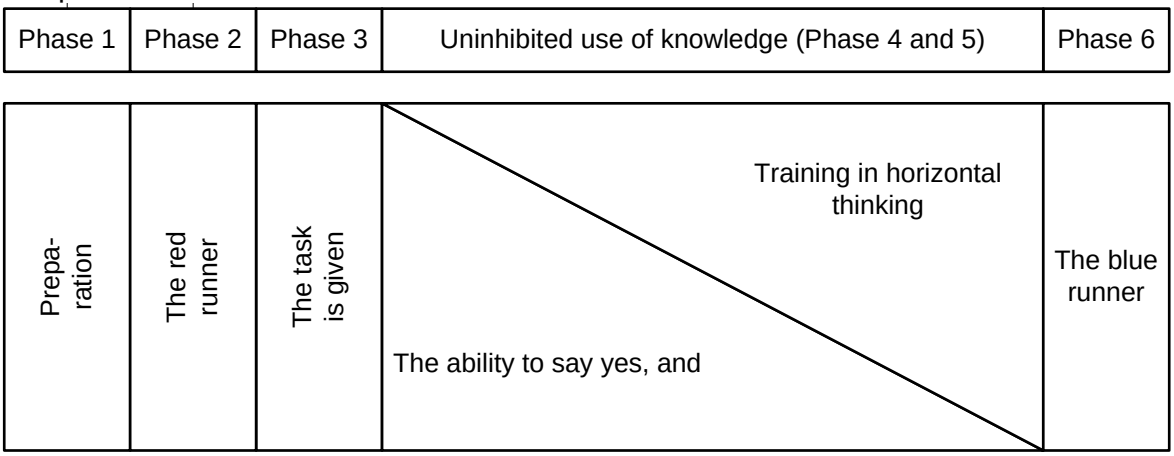
Our brain is constructed in such a way that we think about what happened two seconds before. If we are thinking about that, we cannot come out with our ideas because we are afraid of what others might think, which will affect our behaviour the next two seconds. This restrains our way of thinking and we are not able to be creative. One of the things, the 3D cases help the person on the TCP with is, that after a 3D case or energiser the person thinks about the previous session and because it opened his or her mind or raised the energy level he or she are more ready to go into an open mode and to be creative.

6.6 The process of TCP

In this section we will tell more about the phase's people on the creative platform has to undergo before he or she is able to use his or her knowledge uninhibited.

In the figure below we have visualised the different phases.

Figure 9: Developments in TCP



Source: Hansen and Byrge (2010), p. 61

6.6.1 Phase 1 - preparation

The first phase is the preparation phase. It is at this point that the participants experience a strictly and well planed education. Everything is planed minute by minute, because the persons who are educating also have to be a hundred percent devoted to the task with the participants. In this phase the participants are told something about how the creative platform is working and they are told that they are all unique, because when they are using TCP´s tools, their knowledge should be seen as a "library" where all their knowledge and skills are represented by books that they can open and use. Because of their different

background they can all contribute to solve the task that lay ahead of them. It is also in this phase that they are given an identity which is so anonymous that they do not think about who is a CEO, who has knowledge about a specific area and so on. This anonymity is an important part of TCP because of the pillar “no judgment”. If they know too much about other people’s background, some will be seen as experts and then others will restrain themselves from using uninhibited knowledge which could be used in a lateral thinking session.

6.6.2 Phase 2 – the red runner

The red runner is a phase where there is a mental and psychical change in the learning environment; it is where they practise “no judgment” and “task focus”. The intention with the red runner is to change their normal thinking habits and starts to build up a feeling of comfort, concentration and motivation.

With the red runner TCP starts a "seduction" process where the students very quickly forget where they came from and instead care about where they are going. 3D cases are in this phase, an important tool, because they give the participants permission to break the patterns of how they would normally socialise and talk with each other.

Normally, we are taught to be realistic and vertically oriented in our way of thinking and if we i.e. say that 4+4 = 5 it is wrong and is seen as a mistake. The red runner helps the participants to accept, that if they cannot find an answer or the right answer when they are playing a 3D case, it is all right to make mistakes. Furthermore it teaches them that it is the right way to find new solutions that they could not have found using their old thinking habits, and now they must shout – YES I MADE A MISTAKE – to celebrate that they “broke out”.

6.6.3 Phase 3 – the task is given

In phase 3, the task or the problem that the participants on TCP have to solve during the day is given. Without a task or a problem to solve, there can be no process.

In the real world, when a company have to solve a problem, the people who have to find a solution to the problem are analysing and structuring their case with the intention to come up with an answer. At TCP the situation is different from this “normal” way of dealing with a problem. Here it is the teacher or the person who is in charge, who has focus on the problem. The participants’ only job is to be parallel in their thinking and focus on the sub-task that the instructor gives. It is here that the pillar “task focus” is in use. The overall problem is repeated again and again throughout the process to secure that they remember the main objective. The problem is not revealed to the participants before they enter TCP, because if they were told about the problem before, they would be working with it beforehand, and they would automatically try to

find solutions to the problem. This is because they would start working on different ideas and they would get an ownership of their own idea; you can say that they would be locked on to their own idea and because of that they could not meet other ideas with an open mind – creativity would not have a chance to blossom.

It is only the teacher or the person in charge, who has focus on the problem, we could call it the overall problem, and the participants are then told to have focus on sub-problems within the overall problem. It is not possible to be creative if you have a framework that is too broad. By being focused on a smaller section of the problem one makes it is easier to see problems or solutions in that specific area.

An important issue when the task is given is that the formulations are as abstract as possible. This is because if the task is given on a normal level, experts tend to be more solution oriented. If the definition of the problem is more abstract the result is more opportunity oriented.

6.6.4 Phase 4 – uninhibited use of knowledge

When one's mind is tuned in on a more opportunity-oriented thinking pattern, it is also easier to use one´s "library" of knowledge more uninhibited, because you do not focus on the only book which tell you how to solve the problem.

When you have to go up on TCP you have to prepare your mind to use your knowledge uninhibited which means that you do not think in the "normal" vertical thinking pattern where you are bound to professional, social and cultural prejudices. Uninhibited use of knowledge is also a way of accepting new ideas, and believing in them.

You also have to be able to think and act horizontally, which means that you are able to associate freely and easily to a problem and not only just see the problem as a phenomenon, but also beyond that and find the principle behind the phenomenon. Here you have to be able to switch between concrete and abstract knowledge. It is easier to transfer ideas from one context to another, than it is to transfer a specific technical knowledge between two different contexts.

On TCP all ideas are accepted, even if the idea is wild and crazy and not possible, it is still accepted because you can use the ideas of it as a steppingstone to get further in your way of solving the problem.

It is here that the 3D cases are highly used, because they train you in horizontal thinking and in accepting ideas and building upon an idea. The 3D cases create an environment presence and no judgment between the participants and the teacher. You are playing with creative ideas and by saying: "YES AND" to an idea, you automatically open up to a free environment where there are no norms and rules.

There are no impossible ideas.
There can be only a lack of knowledge
or lack of ideas

(Hansen and Byrge, 2010, p. 72)

6.6.5 Phase 5 – professionalism

This phase cannot be separated from phase 4. When we are on TCP and we have used our horizontal knowledge to come up with a new idea in phase 4, we now might have a problem because our horizontal knowledge is limited. We then need to bring vertical knowledge onto TCP to get further with our idea, we could invite an expert who have knowledge in this specific area. You would then still be on TCP and your uninhibited thinking would not be disturbed. You could also step down from TCP and acquire the knowledge yourself. It is important that you step down from TCP and reflect on the vertical knowledge that you have acquired, because when you reflect on vertical knowledge you cannot use your knowledge uninhibited, you have to make a choice about the information: is it correct or incorrect?

6.6.6 Phase 6 – the blue runner

As we said in phase 2, we need a red runner to get up on TCP, but we also need a blue runner to get down again. The blue runner shall remind the participants that we are now returning to a world where there is judgment, both about you as a person and your work. This is done by a judgment free presentation of their work so far. It is then critical that we change the scene and let the participants mentally change themselves and prepare for some evaluation. This change of scene is important because TCP is a learning environment where the participants learn to let go of professional, social and cultural habits and this can only be done if they never experience judgment and evaluation.

7. Creativity test I

In chapter 4 Creative Test 1 and chapter 8 Creative Test 2, we have carried out a test called Torrance Test of Creative Thinking, to measure if participants on TCP get more creative after being taught the tools of TCP.

When on The Creative Platform one can use his or her knowledge uninhibited but to get on TCP one have to go through the four stages of the pillars that support TCP. Christian Byrge has made a study in his Ph.D. where he measures the strength of the four pillars. This study will be explained in this chapter and should be seen as a foundation to our test of creativity.

7.1 Creative test I

The group has carried out two tests of creativity: Torrance test of creative thinking (TTCT); figural and verbal test (To see the tests, go to appendix 1 and 2). This first test is done before the participants have been on TCP, in order to get a before and after effect.

The group has already said, that we only want to look at creativity within business and not in the artistic performance way. The TTCT figural test, evaluates the creative thinking ability as a constellation of generalised mental abilities that are commonly presumed to be brought into play in creative achievements. In the figural test the participants have to draw upon figures and lines to create something new. What we are testing is not the ability to create something artistic that can be compared to paintings of e.g. Leonardo Da Vinci or Picasso. We test the ability be open to new possibilities and think in new paths.

For each of the mentioned categories in the figural and verbal test below, points are given and the final amount of points is compared to your "grade level" and you get a score of how creative you are.

The reason behind the points and the way the figural and verbal test is evaluated is based on years of research done by Paul E. Torrance and is described in TTCT "Streamlined scoring guide for verbal and figural forms" (2008).

7.1.1 Figural test

The TTCT figural test (Appendix 1) is using different stimuli where the participant has to draw something that comes to his or her mind based upon the stimuli. They also have to add a title to the picture, because the title can add another dimension to the drawing that the person who is looking at the picture has not thought of. Below is a description of how the participants are evaluated.

The participants are scored in the following categories:

1. Fluency

   i. The participants are introduced to stimuli and have to draw something based upon this stimuli and the essence of the drawing has to be expressed in a title where the stimuli is still represented.

2. Originality
   i. The participants receive points based on the unusualness of the responses´. It is not original if two subsequent pictures are the same except for the title, because you are duplicating your response and therefore you are locked in your thinking pattern and does not think out of the box. Bonus points are given if two figures are combined to one picture, because the participants then think in a broader perspective.
3. Elaboration
   i. Points are given for each extra meaningful detail added to the stimuli i.e. the title of the picture is “summer scene” and the stimuli is two lines. The two lines are now turned into a window and through that window there is a garden with flowers, birds and so on. Points are given for each detail; if there are two similar flowers one credit is given, if the flowers are different two credits are given and so on. All the credits are added together and points are given according to the amount of credits.
4. Abstractness of titles
   i. The ability to produce a good title involves horizontal thinking processes. At an abstract level, (the highest) the ability to capture the essence of the drawing from the title, enables the viewer to see the picture more deeply. A title such as “man” or “dog” is given zero credits at the abstract level whereas a title such as “Time of my life” is given three credits because it relates the person to the picture.
5. Resistance to premature closure
   i. The creative person is able to stay open and delay closure long enough to make a mental leap that make original ideas possible. Less creative persons tend to leap to conclusions prematurely without considering the available information. These persons close the incomplete picture (stimuli) immediately with straight or curved lines cutting off original ideas.
6. Creative strengths
   1. Emotional expressiveness
   2. Feelings and emotions are shown through the drawing or the title.
   3. Storytelling articulateness

   i. To be effective, the creative person must be able to communicate clearly and powerfully. The ability to tell a story within a picture is seen as being creative because of the thinking process; the participant is doing something extra to express him- or herself.

4. Movement or action
   i. The inclusion of movement or action in the response is seen as a creative strength and it is based on theories of projective psychology, specifically the Rorschach theory. Perception of movement in the Rorschach Ink Blot technique has long been recognised as an indicator of imagination and a number of personality characteristics essential to creative functioning, such as the ability to fantasise, impulse control, freedom to use imagination and empathy with other people.
5. Expressiveness of titles
   i. To express oneself in a title is an ability to give the picture something extra which could not have been expressed or understood by just looking at the picture.
6. Synthesis of incomplete figures
   i. To combine two or more incomplete pictures is quite rare. When a person makes such a synthesis, it seems to represent a powerful type of thinking and possibly an ability to see relationships among rather diverse and otherwise unrelated elements (this is what TCP calls horizontal thinking).
7. Synthesis of lines or circles
   i. The ability to combine two or more lines or circles seems to be an important indicator of a creative disposition or thinking ability. It is the ability to see other possibilities that other assume are closed, and being able, under restrictive conditions, to use whatever freedom is allowed.
8. Unusual visualisation
   i. Unusual visualisation is an important indicator of creative potential, because the person is seeing something new in a phenomenon. A creative breakthrough comes from those who are able to see things in new ways, as well as in old familiar ways.
9. Internal visualisation
   i. There are many indicators showing that creative people are better able than others, to visualise beyond exteriors and paying attention to the internal, dynamic working of things.
10. Extending or breaking boundaries

i. The creative solution of many problems involves redefinition, getting out of the rut of unsuccessful solutions of the past, extending or breaking the boundaries of the problem. Breaking out of the box.

11. Humor
    i. Humor is seen as creative because it involves unusual combinations and surprises. Humor is important because it brings us from the closed mode to the open mode faster. Because if we laugh we are not so "important" and therefore humor is an essential part of spontaneity and plays. If we are too important we only do it to please our own ego and make ourselves more important.
12. Richness of imagery
    i. Richness of imagery shows that the person has a rich fantasy.
13. Colorfulness of imagery
    i. Colorful responses shows an ability to use ones imagination and shows that the person is capable of accepting things which are not real or so absurd that they are so different form our normal way of thinking.
14. Fantasy
    i. Fantasy provides an almost inexhaustible supply of analogies that are useful in starting and solving problems creatively. The lives of many of the true great creative people of history attest to the importance of fantasy in creative achievement. Many of these great creative persons describe the role of fairy tales, fables, fantasy childhood experiences, and literature as contributing forces in their breakthrough experiences.

7.1.2 Verbal test

The TTCT verbal test (Appendix 2) is using pictures as stimuli and the participant then has to verbally express how they see the picture.

Below is a description of how the participants are evaluated.

The verbal test uses three scoring categories; Fluency, originality and flexibility.

Fluency:

Fluency is the ability to write as many different answers as possible. The ability to think fast and find many different possibilities to the stimulus shows that you have an open mind, which is good for creativity.

Originality:

> In originality you score on the level of rarity of the response. Responses requiring little or no mental leap from the stimulus are not considered as original, in spite of rarity. The ability to be original in ones thinking is important to creativity.

Flexibility:

> Flexibility is the ability to break out of a thinking pattern. If we are locked in the same thinking pattern we will only create ideas that are similar to the ones we already have created. At TCP we call this vertical thinking. Vertical thinking is when you use the specific knowledge on the same specific subject. Flexibility is to use horizontal knowledge. This means that you take knowledge from a different area of expertise and use it on a subject; this creates new knowledge or ideas which could not have appeared in the vertical mode.

7.1.3 Group test

The group test is a test where we have used the methods behind TCP. The participants were instructed to build a house out of 40 A3-papers and one roll of tape, the only rule was that the building they constructed had to be a self-supporting construction with a roof and all the group members had to fit inside the construction. They had ten minutes of individual planning before meeting with the rest of the group in order to plan how they should build their construction. Then they had twenty minutes to create a plan for their construction. It is in this phase where we want to measure the level of creativity and how creative ideas evolve. After the group meeting they had twenty minutes to build their construction.

7.2 Result from the first test

7.2.1 Individual tests

The TTCT-test has been generated from a total of 24.703 tested persons ranging from 1. grade to 13+. grade in the Verbal Form and a total of 54.788 persons from 0. grade to 13+. grade in the Figural Form. In our evaluation of the test we needed to find some similarities in our population according to the TTCT-test so it was possible to compare the results. We found that all of the participant had the same level of education in common, which is 13+, this mean that they all had some kind of high school education. In our grade of education level (13+) they have tested 4.360 in Verbal Form A, 1.068 in Verbal Form B, 1.117 in Figural Form A and 248 in Figural Form B. From these tests an average performance according to ones level of education has been found. Because we do not have any other factor to measure on our population we have accepted the mean as a standard to see how creative our population is. We know that the education backgrounds are different in THE USA and Denmark, but when we measure a “before” and “after” effect

the mean will only affect the result of if the individual person is below or over the average level of creativity.

Table 3: Average Standards Score, TTCT Verbal, Form A

Verbal - Form A			
Grade	Summary of performance		
	Mean	STDEV	Range
13+	99,7	18,8	90

Source: TTCT Norms-Technical Manual (2008)

Table 4: Results, TTCT Verbal Form A

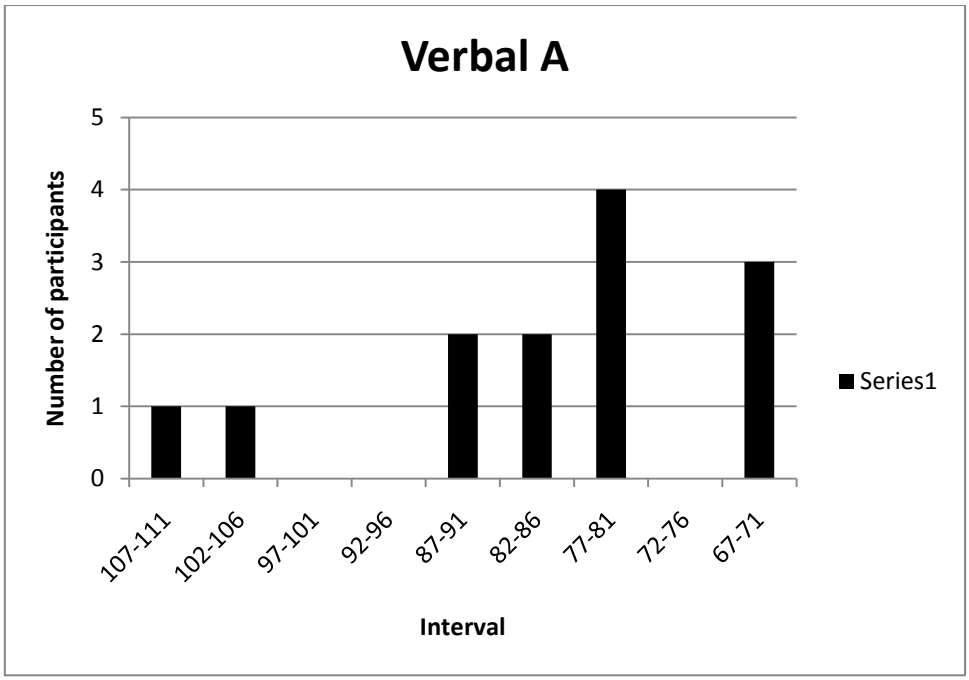
Participants	Participants Mean	Participants over TTCT average	Participants under TTCT average
13	83,2	2	11

Source: Own elaboration

In table 3: Average Standards Score, TTCT Verbal, Form A; we can see, that from a level of 4.360 participants, the mean is 99,7 in our first test (Form A) and our participants scored a mean of 83,2 which is below the TTCT average. We assume that the participants has not been given any education in creativity and because of that we can see that our participants scores 16,5 points lower than they do in the USA with the same educational level . We can also see that only two persons scores over the TTCT average.

Below in figure 10 we can see the spread of the results from the first test.

Figure 10: Results from Verbal A



Source: Own Elaboration

Table 5: Average Standards Score, TTCT Figural, Form A

Figural - Form A				
Grade	Summary of performance			
		Mean	STDEV	Range
13	Battery Average	100	14,2	64
	Creativity Index	109,9	16,4	74

Source: TTCT Norms-Technical Manual (2008)

Table 6: Results, TTCT Figural Form A

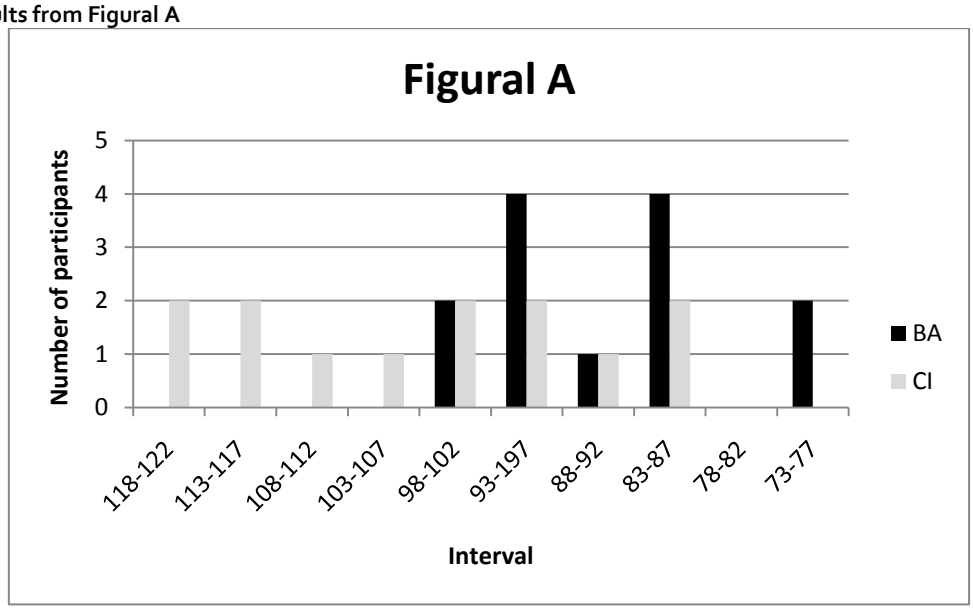
Participants	Mean Battery Average	Mean Creativity Index	Over battery average	Under battery avarage	Over creativity average	Under creativity avarage
13	87,9	102,8	0	13	5	8

Source: Own elaboration

The results from Figural Form A shows that in battery average all the participants have scored under TTCT average and they score 12,1 points lower than they do in THE USA with the same educational level . In the Creativity index it is more even since we have five participants over the TTCT average and eight participants under TTCT average since they score 7,1 point lower than they do in THE USA with the same educational level .

Below in figure 11 we can see the spread of the results from the first test.

Figure 11: Results from Figural A



Source: Own elaboration

Here it is possible to see that there is a more even spread in the Creativity Index (CI) than in the Battery Average (BA).

7.2.2 Group test

The results from the first group test were that three of five groups had an alpha leader who controlled the group and his ideas were the only ones being followed. This created a hierarchy in the group with one leader and the rest as followers and they did not build upon each other´s ideas and that resulted in a minimum level of creativity.

Summary:

With these results the group would like to understand Creativity and how it can be mastered to understand if the next test shows an increase in creativity level. The results from Test A and B will be analysed in section 9.3. The results from the group test has shown that there is a tendency of a hierarchy structure in a group and that with this structure it is difficult for creativity to blossom.

8. Creativity test II

As mentioned the group have carried out two tests of creativity: Torrance test of creative thinking (TTCT); figural and verbal test (To see the tests, go to appendix 1 and 2). This second test was done after the participants were taught the tools of TCP, in order to get an after effect.

Both the figural and the verbal "after" tests were done following the same criteria's as in creativity test I (section 7).

8.1 Result from the second individual test

The TTCT-test has been generated from a total of 24.703 tested persons ranging from 1. grade to 13+. grade in the Verbal Form and a total of 54.788 persons ranging from 0. grade to 13+. grade in the Figural Form. In our grade of education level, (13+) they have tested 4.360 in Verbal Form A, 1.068 in Verbal Form B, 1.117 in Figural Form A and 248 in Figural Form B. From these tests they have found an average performance according to ones level of education. Because we do not have any other factors to use as a measurement tool on our population, we have accepted the mean as a standard, in order to see how creative our population is. We know that the education background is different in the USA and Denmark, but when we measure a before and after effect, the mean will only affect the result of the individual person being below or above the average level of creativity.

Table 7: Average Standards Score, TTCT Verbal, Form B

Verbal - Form B			
Grade	Summary of performance		
	Mean	STDEV	Range
13+	99,6	19,4	89

Source: TTCT Norms-Technical Manual (2008)

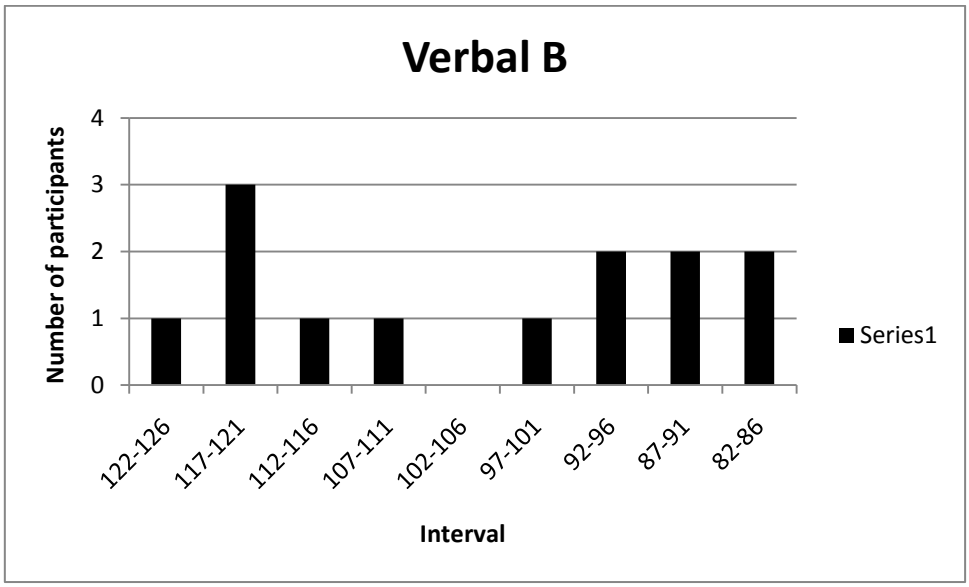
Table 8: Results, TTCT Verbal Form B

Participants	Participants Mean	Participants over TTCT average	Participants under TTCT average
13	103,5	7	8

Source: Own elaboration

In table 7: Average Standards Score, TTCT Verbal, Form B; we can see that from a level of 1.068 participants the mean is 99,6 in our second test (Form B). Our participants scored a mean of 103,5 which is above the TTCT average. We assume that since the participants have now gone through a course in creativity, it is the main reason that our participants scores 3,9 points higher than their fellow students with the same educational level in the USA.

Figure 12: Results from Verbal B



Source: Own elaboration

Table 9: Average Standards Score, TTCT Figural, Form B

Figural - Form B				
Grade	Summary of performance			
		Mean	STDEV	Range
13	Battery Average	100	13,4	64
	Creativity Index	112	14,7	74

Source: TTCT Norms-Technical Manual (2008)

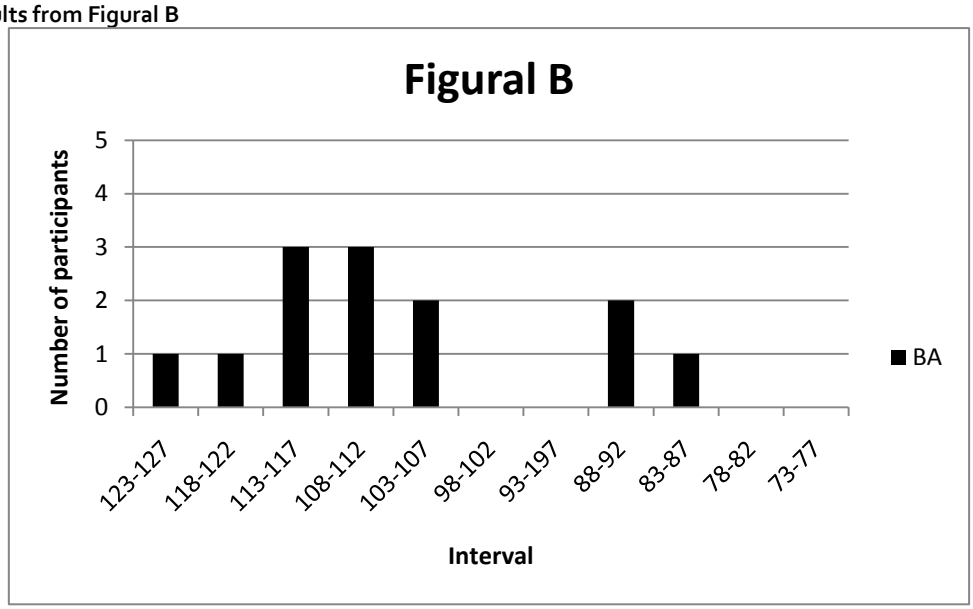
Table 10: Results, TTCT Figural Form B

Participants	Mean Battery Average	Mean Creativity Index	Over battery average	Under battery avarage	Over creativity average	Under creativity avarage
13	113,4	138,8	10	3	11	2

Source: Own elaboration

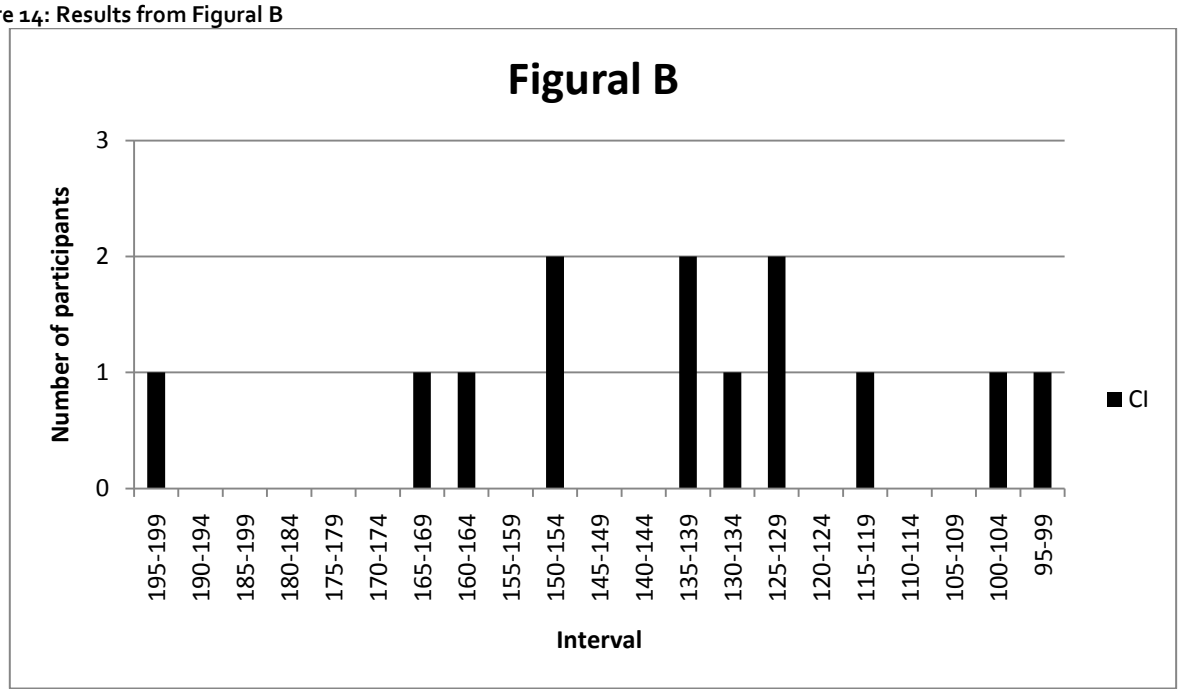
In table 9: Average Standards Score, TTCT Figural, Form B; we can see that from a level of 248 participants the mean for BA is 100 and 112 for CI in our second test (Form B). Our participants scored a mean BA of 113,4 and a mean CI of 138,8, which is above the TTCT average. We assume that since the participants have now gone through a course in creativity, it is the main reason that our participants scores 13,4 points higher in BA and 26,8 higher in CI, than their fellow students with the same educational level in the USA.

Figure 13: Results from Figural B



Source: Own elaboration

Figure 14: Results from Figural B



Source: Own Elaboration

8.2 Results from the second group test

In the second group test we have experienced both an increase in the flow of ideas and that three out of four groups used the method of the creative platform. The alpha leader was only seen in short periods of time in one of the groups because of his daily role as a leader, but the rest of the group members corrected

him in his behaviour and they shouted: “YES WE MADE A MISTAKE”, and then they returned to their creative flow.

9. Discussion

In this section we would like to confront and discuss the presented theory in relation to the findings of our empirical analysis.

9.1 A discussion about creativity vs. psychology and TCP

The group would like to draw parallels and try to explain creativity from a psychological perspective and how creativity is related to TCP.

In table 5 on page 30 we have listed different definitions of creativity. We are of the opinion that creativity is when one turns something into an incremental or radical solution that provides value to the ones who are using it. We also agree with Fauconnier and Turner (2002) that creative ideas occur when two or more inputs are blended into a new and better solution. Claus Buhl says that we are all creative from birth, but we do not agree with that perspective, because you need knowledge to secure that your idea is possible and that knowledge has yet to be obtained. In the developing phase, ideas which are not possible is not seen as dead ends but also as possible solutions to another blend which might be possible. People who want to be creative can be in a closed mode and then they are not able to be creative. This can be because of their mental position at the moment, since external disturbance affect your way of thinking and your concentration.

We think that the method of TCP is a tool, which people who want to be creative can use in order to enhance their creativity. The method brings you into an open mode where it is possible to be creative. The group believes that this can be explained through the physiology, because the five phases of TCP changes your thinking pattern and opens up your mind and allow you to blend input into new creative ideas. One can say that you get access to horizontal memory and learn to use this knowledge to work in a new creative way.

In groups there might normally be an alpha person, i.e. a natural leader and he or she takes control of the session automatically. This situation is not good for the creativity, because the alpha person will try to control the situation. Because of his or her huge ego he or she will defend his or her idea and use his or her vertical knowledge to create a fake group accept to his or her solution to a problem. TCP has developed tools to cope with that problem. First of all, all people on TCP are anonymous and they do not know each other’s occupation which has the effect that no one stands out as experts. If we know, that there is an expert on a specific area in the group, we are afraid of coming up with new ideas because we are not

experts and we will “lose face” if the idea is not accepted by the expert. We automatically go in to a closed mode and the idea generating process will only be building on the experts ideas. This means that instead of using uninhibited use of horizontal knowledge, the group only use the vertical knowledge from the expert.

We have also experienced that phenomenon in our group test. In the first test we saw a tendency of alpha leadership in some groups and it was only their ideas the groups were using, even when some of the other group members had more creative ideas. The alpha leader controlled the group according to his idea and the rest of the group were only “craftsmen” who followed his order.

In the second test, we experienced that the strong ego in some persons were partly or totally gone and they used the method of TCP and they build upon each other’s ideas and created something better than in the first group test. We can hereby see that the method of TCP helps the mental stage of the people in the creative process being creative and in accepting each other´s ideas and thinking out of the box.

Because companies, both private and public, have increased their focus on creativity, their employees have to show some level of creativity. It is our experience that employees saying that they do not need creativity in their daily work, is wrong. Everyone needs creativity, even doctors, accountants, teachers, and so on. As an example, if the Scottish scientist in bacteria Alexander Fleming in 1928 had not been in a open mode he would not have discovered the penicillin. In our study we use the TTCT-test people, who at the beginning of their education in TCP, said that they did not need creativity in their daily work and that they were not creative at all. It was correct that they in the beginning, according to the test, were less creative than the mean, but in the final test their creative potential had increased, and their attitude forward TCP has also changed. Before we started educating them, they were negative towards the method, but at the end they were some of the people who were most positive towards the method.

We can see that people who were in a closed mode, in the beginning, opens up and accept TCP. This could be because they are resistant to changes but the method behind TCP is difficult to reject. Is it really because the method behind TCP changes the psychological mindset of people? The result of our tests does not make us capable of answering that question, but what we did experience was that when people worked together they followed the rules of TCP, said “yes and” and build upon each other’s ideas. This way they created something new, which they might not have if they had followed their traditional ways of discussing problems or ideas.

Therefore the group sees a link between creativity and how TCP affect the mental mind of its participants, where they allow themselves to open up to new ideas and have a positive attitude. We started this dissertation believing that the psychology could help us to understand creativity. We found that the

psychology in creativity is hidden in the literature about creativity. We do think that people who want to be creative by using TCP has to be in a specific state of mind to be creative so the psychology has just confirmed what other are already saying.

9.2 A discussion about TCP vs. creativity and psychology

Through the research we have done, in order to write this dissertation, it has become clear that TCP is using both creative tools and psychology tools. From the creative side, TCP has implemented a mix of several of the most recognized researchers in the field's point of view. From Tanggard (2008) they use the math perspective, from Mikkelsen (2009) they use the psychology perspective, from an existential point of view Csikszentmihalyi (1997) and finally from a business oriented point of view they use Kao (1996). The Creative Platform has been created, mainly, to help companies and organisations utilizing all their assets in the creative process. With great success, TCP has been paring different companies to spar with each other and share their knowledge. They both utilize each person's individual knowledge but they also use the synergies created by the different individuals being a part of the group process. Each individual person's creativity is the first thing TCP is working on. As in theory they see it as important to make people feel comfortable enough in the situation, so that they use creative thinking instead of critical thinking. Making people feel safe and comfortable is very important and one of the key things in order to do this is to make it clear that there will be no judgement on TCP. In a normal situation a company would have the group process on an internal level, for example between members of a product development team as seen in the example on page 26. In this situation there will be several ideas bouncing between the different member and a blend will be created. TCP is taking this process a step further and is forming the group from teams from different companies. This way a totally new and different view of a solution is more likely to occur. (as seen in the example about the beer keg on page 18) In essence, what TCP is trying to do, is to adapt the theory of creativity to the real world through the use of it in real world situations. In order to obtain this, TCP has used a great deal of psychological tools also. The teachers of TCP are very aware of the complexity of the human brain in terms of remembering information. Therefore they use different techniques in order for the participants to remember what they learn. In this regard it is also very important to take away the distractions, for example cell phone and watch and also not schedule any breaks. All this is done in order to create a state of flow where creativity can grow uninhibited, and this is especially important since it is very different from individual to individual how much is needed to distract the person. The human brain tend to always use existing information when creating new blends and TCP tries to avoid this by using different tools such as inspiration cards. Inspiration cards are designed to inspire or steer your neuron transmissions in new directions but at the same time keep you in a flow. Several tools are as we can see used to keep you

in a flow or open mode and the five main point that is needed in the process: Space, time, time, confidence and humour are very important in the process.

9.3 A discussion on test results in relation to each other

We have carried out four tests where we have used a globally recognised test called: The Torrance Test of Creative Thinking. The first two tests were given before any of the participants had any education in the method behind The Creative Platform, and the last two were given after, in order to measure any differences. Because we did not have any prior results from Danish participants we had to use the results from the USA, to compare if they were over or under the average of the mean. We do not see any complications in this, because the result that we are interested in is not comparing our population to the American population, but to measure an improvement after the education on TCP. We are still using the mean from the American population to see if they, in test, have moved from under average to over average.

We started out with 22 persons in our population, but because some of them did not show up at the last session, we ended up with 13, in our population, who had answered all four tests. The population is not large enough to draw any general conclusions, but it can be seen as a pilot test where we can measure a tendency of what might happen in a larger sample.

Table 11: Discussion of the results from the verbal test

Verbal Test					
Participant number	Result Verbal A	Over or under TTCT average of 99,7	Result Verbal B	Over or under TTCT average of 99,6	Improvement in percent
1	88	Under	96	Under	8,33
2	81	Under	94	Under	13,82
3	108	Over	121	Over	10,74
4	78	Under	91	Under	14,28
5	81	Under	119	Over	31,93
6	103	Over	119	Over	13,44
7	91	Under	99	Under	8,08
8	69	Under	84	Under	17,85
9	83	Under	110	Over	24,54
10	77	Under	124	Over	37,9
11	70	Under	88	Under	20,45
12	69	Under	85	Under	18,82
13	84	Under	115	Over	26,95

Source: Own elaboration

In the results we can see that everyone has a higher rate of creativity in test two than they did in test one. We also asked if the participants think that their increased level of creativity was a result of the education they were given in TCP. The result of that pole was 3,6, when 5 point was given if TCP had a major impact on their creativity and 1 point was given if it had no relation to the result. Hereby we can see that it had some impact on their answers, but because of the mean of improvement which is 19,01 percent the group believes that some people are more susceptible to the method than others. The result 3,6, also supports our contention that some are more susceptible than others.

The group therefore believes that TCP had an effect on our populations' level of creativity.

The next test, that we preformed, was the TTCT Figural Test. The test has output results in two different numbers: a Battery Average (BA) number and a Creative Index (CI) number. The BA-number is the same number as in the verbal test, which means that these two numbers are directly comparable. The CI-number is a number based on the BA-number, but because in this test, points are given to a rare creative capability and extra points is given if pictures are combined in activity two and three in the figural test (For more insight please go to appendix 1 and 2 on cd-rom). The ability to combine more than one circle or one set of lines, is seen as a rare creative ability, because you break out of normal rules, this extra point added to the BA-number results in the participants creative index which shows an extra ability to think creative.

It should not be seen as if the verbal test is less accurate than the figural test when measuring creativity, but the verbal test does not allow the participant to merge two answers.

Table 12.1: Discussion of the results from the Figural Test, Battery Average

Figural Test, Battery Average (BA)					
Participant number	Results Figural A	Under or over TTCT average of 100	Results Figural B	Under or over TTCT average of 100	Improvement in percent (BA)
1	100	-	114	Over	12,28
2	73	Under	90	Under	18,88
3	97	Under	123	Over	21,13
4	85	Under	92	Under	7,60
5	82	Under	111	Over	26,12
6	96	Under	105	Over	8,57
7	95	Under	108	Over	12,03
8	82	Under	111	Over	26,12
9	100	-	113	Over	11,50
10	83	Under	114	Over	27,19
11	93	Under	121	Over	23,14
12	74	Under	83	Under	10,84
13	83	Under	107	Over	22,42

Source: Own elaboration

In the results we can see that everyone has been more creative in test two than in test one. Again we also asked if the participants thought that their increase in creativity was a result of the education they were given on TCP. The result were 3,6 as in the other test, but some of the participants though that TCP had helped them more in the Figural test than in the Verbal test and vice versa. Hereby we can see that it had some impact on their answers, but because of the mean of improvement which is 17,52 percent, the group believes that some people, again, are more susceptible to the method than others. The result of 3,6 also support our contention that some are more susceptible than others.

Table 12.2: Discussion of the results from the Figural Test, Creative Index

Figural Test, Creative Index (CI)					
Participant number	Results Figural A	Under or over TTCT average of 109,9	Results Figural B	Under or over TTCT average of 112	Improvement in percent (CI)
1	111	Over	160	Over	30,62
2	84	Under	100	Under	16,00
3	114	Over	139	Over	17,98
4	99	Under	169	Over	41,42
5	92	Under	151	Over	39,07
6	119	Over	138	Over	13,76
7	118	Over	126	Over	6,34
8	95	Under	150	Over	36,66
9	116	Over	127	Over	8,66
10	101	Over	133	Over	24,06
11	107	Over	196	Over	45,40
12	86	Under	98	Under	12,24
13	95	Under	117	Over	18,80

Source: Own elaboration

In the creative index we again have a result where everyone has improved their creativity. The scattering of the results is larger and the results span between 6,34 – 45,40 which in our opinion is large span. The reason to this could be the result of our small sample size that the persons who scored a high improvement had a closed mind in the first test or that that TCP had a larger impact on some people than others. A

The group are in the belief that TCP has an effect on some people and some are more susceptible than others but a mean of 23,92 percent shows an acceptable improvement. An improvement of 23,92 percent in any company would also be seen as an success.

The question is then: does the participant keep their creative level over time or do they need to refresh the techniques? We are not able to answer this question in this dissertation but the participants have agreed to take another test in three to four month. This way TCP can see how much of the method is stored in the

participant´s memory. Generally we can say that over time people tend to lose their memory about something that is not practised. Some of the TCP´s costumers have created a training facility in their organisation, which is a room where they can practise the method and skills of TCP on daily basis.

The results of the four tests are seen by the group as a success and we are in the belief that the TCP has improved the participant's creativity but that some are more open to changes and to learn new ways of thinking than others.

9.4 A discussion of the test results related to creativity, the psychology in creativity and TCP

As mentioned in section 9.3 the number of participants in the test was not large enough to draw any final conclusions but it can be seen as a pilot test where we can measure a tendency of what might happen in a larger sample.

From the results of the verbal and figural tests it appears that there has been a general increase in creativity averaging 19,01 percent in the verbal test and 17,52 percent in the figural. If we look at these results in relation to creativity, the psychology in creativity and in relation to The Creative Platform it shows that TCP's use of creativity theory and psychological insight has had a remarkable effect on the test-subjects level of creativity. The result only show their individual development and it does not offer the opportunity to test if their creativity in a group has improved, but there should be a good chance that it is the case since there are many similarities between creativity as an individual and creativity as a group.

The Torrance test is build up in such a way that solving the assignments, as you have been taught in school, reading the assignment and solving the problem gives you a few points while solving the assignments in a less typical manner where you think out-of-the-box will give you extra points. An example from the figural test would be to combine several figures either as one picture or as part of a history and seeing them as a whole instead of drawing each of them as an individual figure. This was one of the big differences between the first and the second test. Many of the participants became more "free" in their answers in the second test, combined the pictures, thereby scoring more point and hence "becoming" more creative. Seen from a psychological point of view the participants' neurons are now seeking and making new connections and this is because they are not judged by it; on TCP they are awarded for it.

We think that one of the main reasons for the participants to score significantly higher on the second test is because they have been taught horizontal thinking. This have made them capable of seeing the pictures or the text in a completely different way and created a lot of new mental transformations of knowledge within each individual. Add to this the confidence that the lack of judgement has given the participant and it is obvious that the participants are more "free" in their line of thought – they are in a flow.

9.5 Critique of creativity and TCP

In our research on creativity and TCP it has become clear that defining creativity can be difficult since it is up to each individual to judge if he or she sees it as creative. When collecting literature for this dissertation it became clear to us that there are several very different definitions on creativity. For this reason it is important to state that the view on creativity, shown in this dissertation, is our own.

TCP´s concept of teaching how to be more creative in a business related context can be very difficult to measure. We have tried to measure if TCP actually makes people more creative using Torrent´s Test of Creative Thinking. But is creativity something you can measure? TCP will carry out a test, similar to ours, at a later time but we also feel that they should use the practical examples as reference when "selling" their concept as we have also tried in using examples from the real world.

Another issue that might come up in relation to TCP is that TCP´s concept is very group oriented and therefore it is questionable if TCP would have the same success in using their concept on individuals. As mentioned earlier their main targets are companies that will typically hire TCP to teach a whole group but it will be interesting to see if the concept can be used on individuals at a later stage.

TCP´s concept is consisting of somewhat long sessions of 10 to 12 hours and although the creators of TCP deem it necessary also with the support of some of the theory it is important to mention that it can be a problem to some people, focusing for that long. A normal workday in Denmark consists of 7-8 hours of work, typically with a least one small break in the morning and a bigger one at lunch. TCP runs their sessions without any common breaks and leave it up to the individual to for example "sneak" out if he needs to use the bathroom. These changed can be very radical to people and we therefore see it as not only a process of making people more creative but also of learning them new and different ways to focus for a longer period of time.

10. Conclusion

Throughout this dissertation the group have worked with and tried to understand creativity in order to answer our research question:

Is it possible to be more creative by using the tools of The Creative Platform?

The workforce in Denmark has changed over the last 200 years we have moved from a primary occupation in agriculture and fishery to industrial labour and because of the competition from low cost labour from Asia and eastern Europe we are losing jobs and over time we will have trouble to maintain our living standard if nothing is done. The Danish Ministry of Science says that "*Denmark has to win on their creativity"*. Denmark has to implement a more creative mind in people and the group sees this as a paradigm shift because our educating system does not improve students' creative skills, we are taught to think vertical and if we follow an idea and if it cannot be done we are taught to forget about the idea and find an alternative. Therefore the Creative Platform is very popular at the moment because both the government and private companies have a growing focus on creativity.

The group have found that creativity is a highly used word and there are many different definitions on creativity and if you compare them to each other there are only minor differences. That is why we want to come up with our own interpretation of creativity:

> *Creativity is when an individual or a group creates an incremental or radical idea,*
> *and the end product is useable to themselves or others.*

Our definition is much broader than the authors´ we have used in this project and it is because we do not have the feeling that one can create a universal formula to creativity because creativity is subjective and the beauty is in the eyes of the beholder. All in all we feel that no matter if you work with creativity in a group or as an individual; in order to be creative you have to create some sort of value in a social context. This can be both real value or in some cases disvalue.

Because the group belief that creativity is subjective we also have the opinion that if one has to be creative the individual has to find and know his or her individual path to creativity: his or her open mode where creativity can blossom. The psychological aspect in creativity is something we have found very interesting and very important. One cannot just decide to be creative. If the person has a thousand things hanging over his or her head, he or she has to get out of the daily environment of external disturbance to be one with him- or herself or with others. If you do not allow yourself to distance yourself from the external disturbance you will end up in a closed mode where there is no room for creativity. This is because your

mind is thinking on everything else than to be creative and it is our belief that if you empty your head for thoughts that are irrelevant it is possible to be more creative.

The discussion about nature and nurture, is also important when we talk about creativity, because we belief that everyone can be creative if they are just willing to move from the closed mode into the open mode. It is also correct that some people are more creative than others but creativity can be found in all of us.

That is why we see TCP as a good method to implement creativity into any company or organisation, either on a group level or on an individual level. TCP provides its participants with methods which can be learned and used by everyone from a child to an adult. TCP creates a room for participants to feel free and move away from external disturbance. The four pillars are the supporting foundation that the platform rests on and if you do not allow them to influence on the creative work, the participants on TCP will go into a closed mode and it will be more difficult for them to be creative. There might also be some people who cannot use TCP, because they are "always" creative. They could have problems restraining themselves to the rules of TCP. But we believe that TCP can help the majority of people becoming more creative if they are open-minded.

We are also in the belief that when you have learned the method of TCP you have the knowledge to switch your creativity on and off in the needed situations.

In our research we have tested participants on TCP and found that people's level of creativity is different which is in line with our own belief that creativity is subjective. We have also found improvement on the level of creativity from 7-39 percent after participating on TCP which also tell us that some people are more receptive and open to TCP than others. We know that our sample only shows a minor part of the general picture but we still see a tendency in the results. When we talked to the participants afterwards, they felt and asked: *"Is it that easy"*? This shows us that TCP is a tool that can help people becoming more creative by using the methods of TCP and the group that belief that if we carried out another test with 200 or more respondents we would get more or less the same picture.

The creative platform can help you in becoming more creative if you are willing to be open-minded and accept the rules of the method TCP uses.

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11.4 Video

Video Arts: Et foredrag over nakken; with John Clease, talking about creativity at Hotel Grosvenor House, London.