# THE CREATIVE PLATFORM: A NEW PARADIGM FOR TEACHING CREATIVITY

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## Abstract

*In this paper The Creative Platform is elaborated as a new paradigm in didactic thinking where the aim is to engage in an experience rather than reflecting on it. The Creative Platform is a didactic approach for unlimited application of knowledge. In that sense it is a didactics for creativity because being creative involves applying knowledge without being limited from professional, social or cultural boundaries.*
*Part one of the paper presents a literature review of creativity done from a biological, a cognitive, a knowledge, a social, and a motivational perspective. These perspectives are conceptualised into 4 pillars that form the concept of The Creative Platform. The four pillars are defined as No-Judgment, Task-Focused, Parallel Thinking and Horizontal Thinking.*
*Part two of the paper presents a general model for any course or process that is to be taking place on The Creative Platform. The model consists of 6 steps that take the participants onto The Creative Platform, make them work on it, and take them down from it again.*
*Part three of the paper presents a general empirical reflection of the past 5 years of implementing The Creative Platform as a didactic model in education ranging from primary school courses to master level university courses.*
*The paper concludes that The Creative Platform represents a model for enhancing creativity in a course where students constitute diversity in terms of professional, social or cultural background. It also concludes that The Creative Platform should be used in isolated courses or isolated parts of courses where unlimited application of knowledge is needed to generate new knowledge constructions, new ideas, new thinking or new behaviour.*
**Key words:** *creativity, interdisciplinary work, parallel thinking, unlimited application of knowledge.*

## Introduction

The Creative Platform is a didactic approach to teaching creativity. On The Creative Platform creativity is defined as unlimited application of knowledge. This is to be able to apply knowledge without limitations coming from professional, social or cultural boundaries. The Creative Platform is a learning environment, where people apply their knowledge unlimitedly to create new knowledge constructions in terms of ideas for products, services or new perspectives on their thinking.

As a didactic approach The Creative Platform forms a shift in paradigm compared to most didactic approaches. While the core in traditional didactic approaches is about reflecting experiences or literature, the core in The Creative Platform is about engaging in the experience of creation together with other people. This thinking builds on the premise that only through total engagement it is possible to let go of the dominating patterns of thinking that are bound by professions, social structures and cultural traditions. Only in the engagement is it possible to create new knowledge constructions, in terms of ideas, that build on all our existing knowledge, and at the same time are without limitations coming from the professional, social or cultural boundaries.

The development of The Creative Platform as a coherent concept that attempts to create a holistic approach to teaching creativity has been ongoing for more than 6 years. A concept paper

has been published focusing on the exercises (3D cases) that support this concept in a teaching situation (Byrge & Hansen 2009), which builds on the preliminary papers (Byrge & Hansen 2008) and (Hansen and Byrge 2008) as well as several books and papers written in Danish.

This paper elaborates on the theoretical background for The Creative Platform, and a general model of using it on a course is introduced. At the end of the paper you will find a general reflection on the empirical data collected during the past 5 years of implementing The Creative Platform as a didactic model in companies, councils, primary schools, high schools and universities. The purpose of The Creative Platform varies from product development, idea development, to development of the participants' self-esteem; however, all of the varieties focus on unlimited application of knowledge.

The first part of this paper a literature review of creativity is done from both a biological, a cognitive, a knowledge, a social and a motivational perspective. These perspectives are conceptualized into the 4 pillars that together define The Creative Platform. The four pillars are defined as No-Judgment, Task-Focused, Parallel Thinking and Horizontal Thinking.

This paper presents how the 4 pillars are developed from the 5 different theoretical perspectives of creativity. Going through the 5 perspectives, 4 focus areas turn out to be dominating regardless of theoretical perspective. The four focus areas are motivation, concentration, confidence and knowledge. In the paper it is discussed how motivation affects creativity and how there are different kinds of motivation factors, some being negative and some being positive for creativity. It is discussed how concentration acts as a key ingredient in the mindset of the creative person. It also discusses how confidence of the individual and in the relation between people is important as well as what kind of knowledge and how to apply existing knowledge is important.

These focus areas only represent what is important for having a creative process; however, they do not outline how they are carried out in a specific course. How do we develop a learning environment where confidence, concentration, motivation and knowledge are supported? In the paper it is suggested that 4 basic pillars are needed. These 4 pillars constitute the pillars of The Creative Platform. The pillars are No-Judgment, Task-Focused, Parallel Thinking and Horizontal Thinking.

In the last part of the paper a 6-stage model of how to arrange a course based on The Creative Platform is introduced. At the end you will find a general reflection on the empirical data collected during the past 5 years of using The Creative Platform as a didactic model.

## Confidence

The first focus area is confidence. There has been conducted extensive research related to confidence. The arousal level of humans affects their level of creativity. An increase in arousal is a (further) activation of the reticular activation system in the brain stem, the autonomic nervous system and the endocrine system, which leads to a condition of sensory alertness, mobility and readiness to respond. Hull found that an increase in arousal makes human behaviour more stereotypical (Hull 1943). Others have found that also human written language becomes more stereotypical with an increase in arousal (Osgood 1960; Meisels 1967). This is quite an interesting point that might challenge many modern learning environments. Putting students into situations such as presentations, being „on stage", „in the spotlight" or similar therefore seems to decrease their level of creativity. Zajonc has found that the bare presence of other people increases arousal of the individual and therefore might decrease their level of creativity (Zajonc 1965). That might also explain part of why brainstorming techniques seem to decrease creativity (Lindgren & Lindgren 1965). Being around other people is a constant test of a person's personality, social competencies and in a university setting also the person's disciplinary competencies. The students will start to have thoughts like: „am I doing this right", „did I just say something stupid", „am I dressed socially acceptable", „is this how they expect me to react" or similar. These thoughts create a tense relation between people and hereby increase arousal which leads to a decrease in the level of creativity. In fact, it has been found that people are less creative when simply being watched by

others (Amabile, Goldfarb, & Brackfield, 1990). From this it seems as the relation between people in a situation is of vital importance in order to create a creative experience. It seems that in order for a person to become more creative, this person should not be put into situations that increase his/her arousal level. Therefore it is important to make the person feel like he/she is alone while being with others. He/she should be in a mental state where the others are not capable of having an influence on the arousal level. However, it goes even further.

Amabile has separated the concept of motivation in relation to creativity into intrinsic (coming from inside) and extrinsic (coming from outside) motivation factors. On a general level she has found that the intrinsic motivation factors are conducive to creativity, while the extrinsic motivation factors are damaging to creativity (Amabile 1983). Csikszentmihalyi has a possible explanation for this. He finds that high intrinsic motivation, combined with low extrinsic motivation, helps individuals to be more independent of their field because they are less susceptible to pressures to conform (Csikszentmihalyi 1990). This goes back to the negative effects of being around other people. It might be that an intrinsically motivated person simply ignores the „expected expectation" from the people around him/her, while an extrinsically motivated person has too much at risk in the relation with the people being around, and eventually becomes less creative as a consequence. Rogers found that the self-evaluation is preferable to evaluation by others (Rogers 1954). The creative person needs to find something from inside that drives him in solving the task. That might be the reason why Amabile puts such a high focus on the intrinsic motivation factors. A general rule can therefore be to completely avoid extrinsic motivation factors. Even speaking positively to a person decreases his/her capability of being creative in the following period. Several researches have found that positive evaluation prior to a performance has negative effects on creativity (Bartis, Szymanski & Harkins 1988; Szymanski & Harkins 1992; Berglas, Amabile & Handel 1981; Amabile, Goldfarb & Brackfield 1990; Hennesey 1989). This is a very important element since it goes against most other theories of learning where creativity is not in focus. An argument here is that a positive evaluation makes the person want more positive evaluation and therefore tends to reproduce what was previously being positively evaluated, thus ending up only reproducing and not being creative. The person should act as an individual being ignorant to the expectations and the evaluations of others but still being collaborative. In other words, the person should completely be set free mentally by removing any kind of mental, bodily or verbal positive or negative judgment. Several researchers have found that the person that feels freedom tends to be more creative (Picariello 1994; Amabile, Conti, Coon, Lasenby & Herron 1996; Amabile & Gryskiewicz 1987; Ryan & Grolnick 1986).

It must be said that there are some researchers that find some extrinsic factors to be positively related to creativity. For example, Deci & Ryan found that reward and recognition that confirm competence are synergistic to intrinsic factors and therefore increase creativity (Deci & Ryan 1985). Common to these positive extrinsic factors is that they are work-focused or focused on something that does not point directly at the personality of the person. In other words, there is no judgment of the person. Instead, there can be a judgment of the products or the competencies related to the product. Runco & Chad found that factors that are work-focused rather than person-focused are positively related to creativity (Runco & Chad 1995).

## Pillar #1: No-Judgment creates confidence

The first pillar is called No-Judgment. A course on creativity involves having more students present at the same time in the same physical location. In order to deal with the confidence related findings a „totally judgment free" environment is implemented in the classroom. Being aware of the both bodily, the facial and the verbal judgments as well as the judgments from the physical surroundings, this pillar is an attempt to remove as much judgment as possible. This is both the case in the interaction between teacher and students and between the students and other students. It is also the case for the interaction between teacher/student and any other persons being present under a course.

By No-Judgment is meant both the positive judgment and the negative judgment. A very important point here is that it is not about the judgment itself, but rather about the feeling of being judged. Hereby it can stretch much wider than just avoiding judging each other. For example: if person A is performing a task, while person B, C and D are watching, B, C and D might not be judging in their thoughts towards A, however, if A believe that just one of them is judging him/her, then they are as damaging as if they really were judging in their thoughts towards A. It might be that they are thinking about something completely different from person A, but it still has the same damaging effect on person A's ability to be creative. During the entire course the No-Judgment pillar requires all instructions and the performance of all tasks to be done without any kind of judgment. Therefore the teacher should not „look over the shoulder", the students should never work in groups of more than 2 members and should never be „performing" in front of others. The pillar should avoid an increase in arousal. It is also believed that such a focus on removing external judgment from the individual will allow for intrinsic motivation to arise. In fact, a No-Judgment pillar is removing most of the extrinsic motivation factors.

There is another vital point in the No-Judgment that is found to be important in this research. In a normal academic environment people start to build a relation by introducing (formally or informally) themselves, telling who they are, what they do, about their experiences and knowledge. The result of such an introduction is a number of individual presentations allowing the listeners to make numerous amounts of judgments about the presenting person, both in terms of personality and competencies. This leaves the group with a hierarchy and a set of expectations on how the members of the group are expected to behave and contribute. This mechanism is called positioning and is the foundation on which it is possible to judge people in the rest of a course. Think about it: if person A knows that there is a more knowledgeable person B present in a course, then person A will get aroused every time he/she will have to speak to or solve a task with person B. The No-Judgment pillar therefore involves making different kinds of introductions, this being introductions that leave only little room for personally related presentations and therefore only little room for judgments. This research finds personally related presentations to be the facade that is traditionally built up in the first few minutes of an introduction. Therefore this pillar allows participants to be themselves in their act and in their speaking, but not presenting how they think they are or how they would like others to think about them. It will therefore also be an allowance for the students to be themselves and not their facade in a course.

Using this pillar the individual ideas are never positioned, but any idea is considered as a building block to build on, like it is the case with lateral thinking (De Bono 1970). The same applies to the methods used during a course. Once a course has started, the methods are not evaluated, neither is it evaluated if the members of the group are using them right. It is not discussed if anything could have been done better. No-Judgment is therefore also implemented in the course itself and how the students understand the individual tasks. If they understood or performed them wrongly, then the instructions were not good enough and instructions can be changed to be more precise for the following tasks.

## Motivation

The second focus area is motivation. This area overlaps the previous area, since both have a focus on the relation between intrinsic and extrinsic motivation. However, while the previous factors relate to confidence this part relates to motivation. As was found in part 2.1.1, Amabile identified that an intrinsically motivated state is conducive to creativity and the extrinsically motivated state is detrimental to creativity. To this Csikszentmihalyi & Csikszentmihalyi found that a highly intrinsically motivated state is achieved when people are engaged in an activity where the challenges match their level of skills (Csikszentmihalyi & Csikszentmihalyi 1988). To create intrinsic motivation based on finding challenges that match the level of skills becomes highly complex when dealing with a very diverse group of people that might range from 20 years old first year students in economy to 32 years old biotechnology students. Sternberg & Lubart bring

forth an alternative to this focus on the challenges versus skills. They found that the key is to be Task-Focused (Sternberg & Lubart 1996). Any kind of motivation being that intrinsic or extrinsic is only to be understood as a cause for task focus. When a person is Task-Focused he finds himself creative. Therefore they found that any intrinsic or extrinsic motivation factor that increases the person concentration on the task is good for creativity. This is supported by other research that finds that creative insights arise when people are focused on a particular problem, thus not focused on themselves or any other factor around (Kaplan & Simon 1990; Bowers, Regehr, Balthazard, & Parker 1990). However, there still seems to be some issues related to the extrinsic motivation factors. Amabile finds that extrinsic motives can cause a person to divide his/her attention between extrinsic goals and the task at hand (Amabile 1983), thus leaving the person less Task-Focused. It has been found in much research that contracting for a reward leads to lower levels of creativity (Kruglanski, Friedman, & Zeevi 1971; Hennesey 1989; McGraw & McCullers 1979). This reward is normally defined as an extrinsic motivation factor.

## Pillar #2: Task Focus creates motivation

Pillar number 2 is to be Task-Focused. On The Creative Platform it is important to be 100% aware on the focus of the task. Any task or subtask that is not the focus of the process should be removed from the participants both in terms of responsibility and in terms of thinking.

The research finds that the focus on challenges that match levels of skills can be difficult when dealing with a diverse group of students that might differ in profession, culture, age and experience. In order to come about the issue and still have a focus on intrinsic motivation as relation to extrinsic motivation this pillar focuses on the amount of tasks instead of the level of a challenge. This pillar makes sure that the students are not challenged on their expertise, their competencies or any other profession related part of a student. Instead they are to focus on the task, bringing all the knowledge they have into the task regardless of profession, competencies or anything else. They should not consider if the ideas they get are right or wrong, difficult or easy. The focus on the task is to accept any idea that is being developed wherever the knowledge behind it comes from. Only by creating this „all ideas are usable atmosphere" will it be possible to apply all the knowledge of the group to the specific task. Therefore the point is not to take the students from the level they are at now and to the next level of competence. To be Task-Focused is to use any kind of knowledge that might fit in order to solve the specific task. Any new idea that is developed is a new knowledge construction for the student and therefore a new competence or expertise.

Therefore the teacher should not think about how to find tasks or the level of a task that suits the students participating in a course. The teacher should make sure that the students focus on the task that they are doing, and in doing so are applying all the knowledge they have in order to solve that task. Since they are never judged they will not have to prove anything to any other person. In other words: they apply any kind of knowledge to the task at hand, regardless of background, culture, profession or social status. If the teacher makes the student focus on that, he/she will find the students intrinsically motivated, as they will find it „funny" to develop new ideas (developing new knowledge structures). The basics of task focus are never to accept any kind of presentation of the students, and to keep away social or professional discussions during a course. Do never say „you must know how to do that since you are an economist". Such a sentence puts a focus on the students and their competencies, and will make it difficult to go back to a Task-Focused mindset afterwards.

All this focus on the intrinsic motivation factors and the task-focus of the students can question if an instruction from the teacher on how to do, what to do, and how to interact might be considered as an extrinsic motivation factor and a disturbance to the task focus. in other words, how much is the teacher allowed to instruct. Crutchfield found that extrinsic motives may start the initial involvement with the task, but should only provide sufficient contact with the task to engage intrinsic motivation (Crutchfield 1962). In other words, the teacher can act as an extrinsic motivation factor that disturbs the task-focus, however, only to change task or subtask. Whenever

the students are Task-Focused on the new task, the teacher should not interrupt, instruct or anything similar.

This pillar is to allow the students to focus so much on the task that they are solving that they lose track of time, that they lose track of colleagues, that they lose track of themselves, their profession and their personality.

Another dimension of Task-Focused is to consider what to be creative about. Image that you give an assignment to the students to develop ideas for a new kind of air filter. Then you might leave the room and later come back into the room. Here you might find that some of the students are standing by a whiteboard and making drawings, others of the participants are lying on the floor making calculations, one is making a painting, another one is singing a song about the problem and the rest are playing a game. At first you might think that this is very creative, because the students seem creative in terms of their organizing, methods, and working style. However, from the point of view of the pillar on task focus, such a situation is a failure. The task focus that was given to the students was to be creative about a new kind of air filter, and the real focus of the participants turned out to be about their organizing, methods and working style. From one point of view you might think that being creative about the organizing, methods ad working style might also increase the level of creativity about the new kind of air filter. However, in a course based on The Creative Platform the students are to learn how to solve a problem creatively. Not to be creative in any way they find interesting. It is the responsibility of the teacher to direct the focus on the task, and which tasks to focus on. There must be no doubt that a course is directed by the teacher, and any attempt to divert from the planned process is a mislead away from the task focus. The facilitator should prepare all methods and all exercises beforehand, to avoid that the participants start thinking about alternative methods, alternative organizing or working styles. Once they start to think that they can influence a course, they start focusing their thinking towards how to use this influence positively, and they are not Task-Focused on the problem any longer. To give a stronger allowance to the participants it is a good idea never to tell or outline the entire process of a course at any point before a course is finished.

### Concentration

The third focus area is the one that deals with concentration. In creativity research concentration is dealt with from more angles. Maslow finds that creativity appears in the self-actualisation mode. He finds that self-actualized creativity is the spontaneous expression of the person whose basic needs have been satisfied (Maslow 1968). This is the mode where all other needs ranging from physiological needs, security need, love and belonging needs, esteem need, and the experience needs are fulfilled. In such a mode the self-actualisation will allow the person to be creative. In other words, if a person is allowed not to concentrate on other needs, then the self-actualised creativity might take place.

Other research relates stress to creativity. Dentler & Mackler found that stress decreases originality in association tasks (Coren & Shulman 1971). These finding are supported by Horton, Marlowe and Growne (Horton, Marlowe & Crowne 1963). In line with this it has been found that stress also decreases originality in creativity tests (Dentler & Mackler 1964; Krop, Alegre & Williams 1969). Stress can be understood as the measure of the average amount of tasks exerted per minute of a human being. Therefore, if a person is stressed it is because he/she has more tasks to think about than he/she is capable of in that particular minute. Mendelsohn has similar findings as he states that „The greater the attention capacity, the more likely the combinatorial leap which is generally described as the hallmark of creativity" (Mendelsohn 1976). It seems like the amount of „thinking tasks" versus the amount of capable attention of a human has a strong relation to the level of creativity. We do not seem to have much power over how much information our mind can process, as Miller found the magical number of elements we can have in our short-term memory to be seven, plus or minus two (Miller 1956). Therefore we need to control how much information we give the students while they are working. This amount of information has to be no more than

what is necessary for solving the particular subtasks. More than that seems to decrease the level of creativity.

Henle found that creative persons have a detached devotion to performing their tasks. He defines it as when „...the ego lends itself to the work rather than dominating the task" (Henle 1962). They are completely devoted to the work; however, they do not take the responsibility of the result, the outcome or the deadline of the task. They feel detached from the responsibility of performing the task. Henle's work has been supported by other research (Barron 1963; MacKinnon 1962). Therefore a course has to allow the students to be devoted to the work, but at the same time be detached from the tasks.

## Pillar #3: Parallel Thinking creates concentration

The third pillar for teaching creative competencies this paper calls Parallel Thinking (De Bono 1994). During a course the students have to think about many different tasks. Parallel Thinking is to make all students think in parallel about these tasks. It is to focus the thinking of the students on a common subtask at any given time. In other words, it is to make the students follow each other in their steps of thinking. Sternberg and Lubart identify that one of the keys for creative thinking is to divide tasks into a large number of smaller tasks (Sternberg and Lubart 1991). Parallel Thinking divides all the tasks of a main course into multiple and easy to process subtasks. These subtasks are then given to the participants collectively, so that all participants are solving the same subtask at the same time – they are thinking in parallel upon the same task. Hereby it is ensured that all subtasks of the main task will be taken care of separately in the process one at a time. They will not be mixed and not be overlapping. Therefore Parallel Thinking is to structure/ systemize the thinking of a group of people. The opposite of Parallel Thinking is to rely on self-organizing social systems among the participants, where participants „randomly" think and talk about the same or different subtasks at any given moment.

Image that you want to solve a task e.g. to write an introduction to a paper. While writing this, a lot of other thoughts appear in your mind. This can be thoughts like: „what should I make for dinner tonight", „when is it time for coffee", „who is calling me on the phone now", „what should I do after this task", „why don't I do this task in a different way", „I have to remember that I have an appointment at the hairdresser tomorrow", „do I perform this task the right way", „what should I write in the next part of the paper" and many more. Any of these thoughts makes it impossible to be totally concentrated on writing the paper. When working in a group it becomes even more difficult, since not only your own thoughts disturb your concentration, but also the thoughts of others, when they are outspoken, shown in body language or similar. Every time somebody speaks about anything else but writing that paper, he/she makes it more difficult to concentrate. Parallel Thinking maximizes the sensitivity of the thinking about a particular area or field (De Bono 1968) and hereby creates a very high concentration of the students on that particular subtask. The point is that a continuous thinking about a specific subtask is actually a stimulus for the thinking of the subtask itself. Parallel Thinking creates a spiral effect, where the sole thinking about a subtask makes it easier to think about that particular subtask.

Parallel Thinking must be used in all instructions, in all explanations, in all exercises – basically in all activities related to the students in order to give the students the allowance of just thinking about one simple task at a time and never have to think forward or backward about the process. Hereby, also breaks for eating, drinking water, coffee etc. should be individual subtasks that should not interfere with other subtasks.

Parallel Thinking gives a large number of responsibilities for the teacher, which is not typical for most teacher situations. However, it is important to understand that giving out responsibilities to the participants that are not directly related to the subtask they are currently working on is the same as giving them another subtask to think about, thus taking away their possibility of concentrating.

## Knowledge

The last focus area is the one that deals with knowledge. Knowledge and its relation to creativity seems to be widely discussed from a number of perspectives. The fundamental of this part of the research comes from Weisberg's understanding that knowledge may provide the building blocks out of which new ideas are constructed (Weisberg 2007). There seems to be a general understanding that new ideas come from existing knowledge. A number of researches have found that it is the retrieval of existing structures from memory that makes it possible to create new ideas (Smith 1995; Perkins 1981; Ward 1994). Other researchers have studied when people tend to create breakthrough creative ideas. Here a 10 year rule has emerged. It seems as if a person has to have worked with/in a particular field for about 10 years before his/her breakthrough comes about (Hayes 1989). The 10 years rule might be difficult for most students to fulfil. However, other researchers have focused not on a specific number of years, but rather that a deep immersion in one's chosen field is necessary before creativity is produced (Gardner 1993; Gruber 1981; Csikszentmihalyi 1996). It finds that a person must have been involved in a field before creativity tends to appear. Amabile explains this as the need for domain relevant knowledge (Amabile 1983).

The problem when a person contains all this knowledge and experience from a particular field is that he/she will find it difficult to think out of the box. De Bono finds that „Too much experience within a field may restrict creativity" (De Bono 1968). He finds that a very experienced person starts to think in patterns, thus making it difficult to come around these patterns of thinking. Other researchers have compared novices with experts, when changing the conditions/rules in which the experts have built up expertise. Here it is found that past experience is bad when new rules of the game come about (Frensch & Sternberg 1989; Luchins & Luchins 1959). In other words, it seems to be more difficult for experts to adjust to new conditions, thus more difficult to be creative, than it is the case for novices. This research has focused on the long term effects of knowledge. However, a person also seems to have trouble with the knowledge dimension on the short term. Humans retrieve knowledge in a system where the recently activated knowledge has highest priority, and knowledge that has been activated longer ago has lower priority. Therefore given examples, presentations for inspiration or similar have a huge impact on the level of creativity afterwards. A general rule might be to exclude any kind of inspiration, lecture and examples during a course. The research show that even if the students were explicitly told to do as differently as possible from examples, they still had trouble with the system of recently activated knowledge, thus making the ideas very similar to the examples given (Smith, Ward & Schumacher 1993; Marsh, Landau & Hicks 1996). This system of recently activated knowledge becomes an involuntary mental block caused by a negative priming (Smith & Tindell 1997) that might have been made in a good intention, however, has damaging effects on the creativity level.

The development of a creative idea or the sudden insight is explained by a number of different researchers and in a variety of definitions. Shepard explains this as a mental transformation of existing structures into new forms (Shepard, & Feng 1972). Thompson explains it as a mental synthesis of new structures (Thompson, & Klatzky, 1978). Mednick finds it to be the formation of simple associations among existing structures from memory (Mednick 1962). In the same line it has been found that it is a combination of existing structures from memory (Hampton 1987; Murphy 1988; Baughman & Mumford 1995) and that it is an analogical transfer of information from one domain to another (Novick 1988; Gentner 1989; Holyoak & Thagard 1995). All of this shows a large emphasis on stored knowledge from one area of the memory applied to a problem related to another area of the memory. This paper defines this as Horizontal Thinking. The relation between Horizontal Thinking and the development of a creative idea or the sudden insight is also supported when ideas are back-traced. Hausman found that the creative product is not comprehensible or analysable in terms of what was known before (Hausman 1984), simply saying that what has come about in the new idea is new to that particular area of knowledge.

**Pillar #4: Horizontal Thinking creates the right to use the knowledge**

Due to the recently activated knowledge problem of humans the new thinking should not be done as a discussion, where any input, verbal or written, is determining what knowledge will be activated thus which ideas will be developed. The students would simply get stuck on an idea (category of ideas) too fast and would find trouble getting more new ideas when they first have started to talk/write about the first ideas they would get. Therefore the Horizontal Thinking pillar is introduced as the support for getting new ideas (categories of ideas) on demand at any given point during the course. This pillar is basically making sure that as much of the existing memory is applied to a situation. This pillar is constructed from the more pragmatic approaches to creativity such as lateral thinking (De Bono 1970), 40 inventive principles (Altshuller, Shulyak, Rodman & Fedoseev 1997) as well as analogies (Gordon 1961). These approaches are almost all dealing with Horizontal Thinking. They also provide a large amount of practical techniques to be used in a course (which will be shown in the next part of this paper).

The Horizontal Thinking also creates a huge focus on new knowledge constructions, and less focus on existing knowledge constructions. Therefore the students are supposed to create new knowledge and new ideas, and less to get new knowledge presented by professors. This is very different from most other university courses, where it is considered that the students should listen and get the new knowledge served from the professors. In this creativity course there should be no or only very few lectures, and these lectures should only be supportive for the students' development of new knowledge, not giving them the new knowledge. In other words, the students should use their existing knowledge from previous studies and experiences to create new ideas (knowledge) during this course. This is what Horizontal Thinking provides in a practical way.

## How to Set Up a Course on the Creative Platform

A common quality of all activities taking place on The Creative Platform is the engagement among all students. Opposite to most teaching traditions, The Creative Platform is a place where judgment is absent, and this offers the students an opportunity to let go of „protecting themselves" and just engage in a course. This unique condition can be created in a protected environment specifically created for the purpose. Therefore courses on The Creative Platform are time limited and often introduced as a camp. Arranging a course as a camp means to gather a number of people for a defined period of time (normally between 24h – 48h) in an isolated place away from normal study environment. A course as a camp should not be disturbed by thoughts about assignments, social arrangements or similar that are triggered when being in a traditional study environment. The empiricism used in this paper comes from camps with the following purposes and others:

- Solution camp where companies bring forward a problem that a cross-disciplinary group of students is solving creatively.
- Commercialization camp where a patent unit from a university brings forward an un-used patent and a cross-disciplinary group of students is developing creative ideas of how to make use of it (how to commercialize it) during the creativity course.
- Computer science camp where a software company brings forward a problem and a group of computer science students is developing creative ideas for new software to solve the problem.
- Regional development planning camp where a municipality brings forward a regional development plan and a cross disciplinary group develops new ideas for how to implement it as a policy.

A camp or any other course on The Creative Platform involves a specific number of steps that are developed in order to fulfil the four pillars. These steps function as the transformation of theory into practical teaching. There are 6 steps which are outlined in the following model for the camp (course on creativity).

The 6 steps are: preparation, the red carpet, presenting the problem, idea development, professional input, and the blue carpet. A course should be organized as a linear process, however, there is a feedback loop between idea development and professional input.

## Preparation

In a course on The Creative Platform the teacher will be deeply involved in a course while it is running and would have to let go of control of the ideas developed. The teacher will have to trust that the process of a course will proceed right when a course is structured and instructed according to the four pillars of The Creative Platform. It is not possible for the teacher to keep the overview when a course has started. Each task will have to take over from the previous task making sure that Parallel Thinking is taking place. The Parallel Thinking also involves no or only very few breaks as the breaks are potential risks for the students to break the parallel work, if some are continuing while others are taking real breaks. It should be possible for the teacher to focus on one task at a time exactly like the students are supposed to. Therefore it is preferable to have one sheet of paper for each subtask of a course, thus being able to focus on only that sheet of paper until the particular subtask is finished. When finishing a subtask the teacher should throw away the paper just used, and take the next one in the pile. This gives the teacher a chance to engage in the subtask at the same level as the students. It is therefore very important to prepare a course in details beforehand.

In preparing a course it is also very important to prepare the room(s) where a course is about to take place. Try to avoid any practical problems that will remove the focus of the students from working with the task. A course on The Creative Platform is very sensitive to disturbances because they make it difficult to keep to the principle of Task-Focused. Also make sure no people are passing by or can interrupt from their presence around. For example making such a course in a place where there is a soccer match going on outside the windows makes it very difficult both to make Parallel Thinking and Task-Focused work.

## The red carpet (getting onto The Creative Platform)

The red carpet starts a course when working on The Creative Platform. The purpose is to guide the participants away from the world of judgment (opposite of No-Judgment), being individually responsible for the process (opposite of Parallel Thinking), the focus on everything that pops up into your mind (opposite of Task-Focused) and being analytical (opposite of Horizontal Thinking). The red carpet will make the students understand that from this moment on we are creating new rules of thinking and new rules of interaction. These are the rules of The Creative Platform.

In practice the red carpet consists of a number of exercises that combines physical and cognitive tasks. The exercises are called 3D cases and are explained and exemplified by Byrge & Hansen (Byrge & Hansen 2009). Through these 3D cases the participants practice competencies in never to judge yourself, others or ideas, learn to be focused on the task at hand, learn how to think horizontally and how to think in parallel. These exercises also build up an energetic and positive atmosphere. The red carpet is the entrance to The Creative Platform where the participants, in practice, are introduced to a world guided by the principles of No-Judgment, Task-Focused, Parallel Thinking and Horizontal Thinking.

## Presenting the problem

At this stage the TASK is presented. The problem should be presented without introducing further inputs of any kind that could make mental blocks for the students. Any kind of extra input

will reduce the diversity of the following idea development because of the theory of recently activated knowledge. If the purpose of a course is to come up with new ideas, the problem should be presented without outlining the background or the context in which the problem exists. Therefore it is the principal problem that it is important to define and tell. In order to focus on the tasks of the problem the presentation of the problem should only involve one problem and not a set of problems. In order to stick to the Parallel Thinking the steps of a course should not be presented here. At the end of the presentation of the problem the first subtask should also be presented and the idea development starts.

## Idea development

On The Creative Platform ideas are constructed from unlimited application of knowledge. In this definition any idea is a unique construction of knowledge designed for solving the specific problem at hand. In a course on The Creative Platform participants are using Horizontal Thinking in order to apply their knowledge as unlimitedly as possible. The purpose of the idea development is to come up with unique ideas by developing as many as possible.

During the idea development the professional, social and cultural borders are invisible due to the No-Judgment and Horizontal Thinking pillars. The participants benefit from all their knowledge and experience. At the beginning of this phase it has been found that Horizontal Thinking is difficult due to the fact that we have been trained in vertical thinking in most other courses in school and university. Therefore the idea development phase consists of several rounds, where the output will be more new than the later rounds.

During the idea development different cognitive approaches are used to help stimulating Horizontal Thinking. There should always be a progression allowing the participants to build up competencies in Horizontal Thinking. From our experience the practical use of Horizontal Thinking for idea development should start by using analogies like persons, animals or plants as stimuli. Later it is possible to use random stimuli like words, pictures or objects. Later on we use general principles and at the end of the idea development we use provocations to stop vertical thinking. All these creativity techniques are helping the students into a structured way of thinking horizontally.

Idea development on The Creative Platform is an iterative course where we start over and over again. We want as many new ideas as possible. Horizontal Thinking is a course where the participants, little by little, let go of their normal vertical thinking. In that sense it is a rather extensive course because it takes time to let go of existing ideas. And it is necessary to let go in order to let new ideas come to mind in order to get the experience for the students of being creative.

In the idea development there must be no judgment at all. Instead the participants need to be able to say „YES" to any idea and to build new ideas on the basis of that idea. Every time a new idea has been developed, we let go of it in its specific in the search for a new. The principle of No-Judgment is extremely important during idea development because it stimulates the strange and maybe crazy ideas to be put forward which are building blocks for other ideas.

## Professional inputs

Up till now, no knowledge input of any kind has been given to the participants. A course is about applying the knowledge the students have from other courses and other previous experience through the Horizontal Thinking. However, at some point the idea development matures and no new ideas are generated. At this point the students need more knowledge in order to proceed in the idea development. This knowledge is not to be provided in terms of presentations or lectures like it normally would. This would only block their thinking. On a course using The Creative Platform the new knowledge is provided by bringing in new participants to a course. It is important that this new person holds knowledge that is different from the existing students, or holds a position

that can be respected by the students. It could be other students, the customer, the teacher, another teacher or the experts from different professions we identify as horizontally relevant to the problem.

The way the new knowledge is applied is through further idea development in exactly the same way as in step number 4. It is very important to „warm up" the new participants before allowing them to participate in further idea development. At this stage of a course the atmosphere on The Creative Platform will be very open, and to protect it from judgment and lack of Parallel Thinking it is important that the newcomers understand what kind of environment they step into. Also, they must understand the Task-Focused pillar in order to avoid damaging the task focus of the entire group.

During a course some ideas are chosen to develop further or to develop ideas on how to be implemented. This choosing of ideas should not contain a judgment and not destroy the Parallel Thinking. Therefore any choosing of ideas is to be based on one criterion only: the idea that is most interesting. If e.g. a visiting company puts forward the problem and also participates in parts of a course they might have a strong wish for a specific idea or a specific set of criteria, which basically is a judgment and a focus on vertical thinking. The company will by its very presence represent vertical thinking in their own particular problem, and thus any focus on what they hope for is a focus on vertical thinking. The expression of interest in any idea or any set of criteria is at the same time a negative judgment of any other idea or criteria, thus leaving the students with a trade off choice: how much should we obey the company, and how much should we obey the pillar for The Creative Platform.

In a course like for example a camp the idea development and the professional inputs will be put together in an looping iterative mix, but it will never start with a professional input.

## The blue carpet (getting down from The Creative Platform)

A course needed the red carpet for making the students getting onto The Creative Platform. In order to get down again, we need the blue carpet. We need the blue carpet to get off and to prepare ourselves to be judged again, to be working with a lot of tasks simultaneously, to be discussing and consider several stages of a process at the same time as well as using vertical thinking again. Basically the blue carpet is a „bringing students back to normal". The situation is similar to visiting a sauna. You prepare yourself in the changing room before you enter the sauna. Inside the sauna we expect people to be naked (in Denmark), which would be unimaginable in the street of a city. Image that, while sitting in the sauna, suddenly the sauna is removed and you find yourself naked in the street. You would probably newer enter that sauna again. The same way the students would feel about The Creative Platform if they for example suddenly would be judged, while not being prepared for it. Therefore the blue carpet is a safe exit from The Creative Platform that makes sure the students will enter it again later.

A common activity on the blue carpet is to have the participants present their ideas to the other students and sometimes to people who have not participated in the other stages of a course. The ideas should NOT be judged in any way at this stage. After the presentation of ideas the participants are reminded that a course has ended and are allowed to mingle in a social manner. If the participant did not know each other beforehand, this will be their first change to socialize on a course. By doing that they enter the „real world" again. If judgment of ideas or persons is needed, e.g. in terms of an examination, it is very important to facilitate that every participant has got properly off The Creative Platform. This will reduce the risk of anybody being hurt, taking it personal, and make it easier to enter The Creative Platform a second time in the future with the same students.

## General Considerations when Using The Creative Platform

In order to create a platform where Parallel Thinking is taking place, while the students are Task-Focused and No-Judgment is put at is fullest, it is essential to be able to identify potential disturbances for the participants focus. Basically, any physical and mental potential disturbance of these pillars should be removed and this is the responsibility of the teacher. Byrge & Hansen state the following general essential disturbances to consider when creating The Creative Platform (Byrge & Hansen 2009):

- All watches, mobile phones and computers must be removed right from the start of a course. Knowing the time only makes the participants think about when „it is time for a coffee break", „when I should be hungry", „speculate in deadlines" or thinking about „oh no, soon we have to be finished" and similar. The mobile phone and the computer are some of the major disturbances in terms of phone calls, sms, e-mails and similar.
- All drinks and foods including coffee must never come into the room, where a course is taking place. At the moment the participants can smell or see coffee, food or similar it will be difficult for them to keep their mental focus on the subtask they are working on. Also if you eat something yourself in front of the students while they are working are in, you are actually destroying their possibilities of staying on The Creative Platform.
- A course must never take place in a room that reminds the participants of some other activities or deadlines that they might have e.g. in an office or in their normal lecture room, which might remind them constantly of an assignment they are due on. Even staying or walking in the room where you know you are supposed to have coffee or food at some time or used to have it in the past will damage The Creative Platform.
- Nobody except the students, the teacher and other invited participants must be or come into the room during a course. Any other persons will be a disturbance.
- Anything placed on the table or being dominating in the room that is not related to the subtask is a disturbance. This is including paper and pens lying on the table. If the sub-task the participants are currently solving does not need paper and pen, they will only function as disturbances for the participants in that particular subtask. Only allow items to be present when they are needed.
- If a participant wants to go to the toilet, wants to go smoking or similar, he/she should just do it without any remarks like; „do someone else want a break". It is the existence of the entire group of students on The Creative Platform that is important, and individuals must not interrupt this with personal tasks. If a participant cannot understand „what is going on right now", he/she should leave a course until he or she is ready to focus again. Remarks like „I don't follow you" or „I cannot understand what we are talking about right now" are only distractions and should never appear.

## General Empirical Reflections from Applying The Creative Platform

The Creative Platform is an idea of a meeting place where everybody can meet and create together in a process of unlimited application of their knowledge. During the last 5 years students ranging from the primary level in schools to master degree students at universities have participated in different set-ups which all have the same general model of a course on The Creative Platform in common. The four pillars have been used in all courses and all courses followed the 6 phases as well as the general considerations for The Creative Platform. Throughout these courses data have been collected in 60 reflection reports, 81 qualitative questionnaires and 28 qualitative interviews. Here we summarize the experiences from these courses.

A course on The Creative Platform normally results in ideas that are radically new to the participants and/or to the customers. But it is difficult to quantify how often a process on The Creative Platform leads to radically new products or services that are actually produced or imple-

mented. This is mainly because The Creative Platform is used to generate ideas or inputs to a following process and, in most cases, we have no data on what happens in that following process. On the other hand, most processes on The Creative Platform are not about product development, but about transfer and development of new knowledge in an educational or institutional setting, where the result is new or expanded perspectives on for example a problem area or a procedure.

Many participants express afterwards that they have had an unusual (positive) experience in terms of working with others in solving tasks where professional, social and cultural status is ignored and of no importance. Quite a few participants even express that they have made fundamental changes in their view on teamwork or even in what they value in work or private life. This seems to be because of the intense engagement and experience of being part of a creation that many people experience on The Creative Platform. The Creative Platform is a unique method for development of teamwork where focus is on creativity and the participants' development of self-confidence.

Most participants tell us that they are tired after a process, because they have been working with a high level of concentration during the process and because Horizontal Thinking is a demanding thinking process to the novice. The work load is high in a process of The Creative Platform. Because of the high level of concentration and because discussions are exchanged with idea development, the effectiveness is also high. Another finding is that because the principle of acceptance is dominating on The Creative Platform, the process never stops because of needed resources, people, money or anything else. On The Creative Platform it is without discussion that all that is needed is already available in the situation. In terms of stimuli in a creative process that principle is known as provocations or an open mindset.

Having tried being on The Creative Platform it seems to be fairly easy to get back onto The Creative Platform a second time. However, in most cases a teacher or a group facilitator is needed also the second time. This is mainly because it is difficult to focus 100% at a subtask and at the same time keep an overview of the future process. On The Creative Platform all responsibility is placed at the teacher in order to help students focus and let go of other thoughts.

A more elaborative analysis is currently being conducted from the data collected throughout these courses.

## Concluding Remarks

The Creative Platform represents a model for giving students an experience of how to be creative. Hereby the students will get a practical experience on how to apply their knowledge unlimited to a particular problem being free of their professional, social or cultural background. On The Creative Platform it is possible to participate in a course without the students thinking about protecting themselves in terms of being a professional, a social or a cultural person. On The Creative Platform you are newer judged for whom you are or what you are doing and you never have to take responsibility for neither the process nor the results it produces. During the process you are free to build on any idea, playing with your knowledge in the development of an idea for a solution to a problem. Therefore The Creative Platform offers a learning environment where people with different professional, social or cultural background, and even very different levels in competencies, can work together in a creative process.

The Creative Platform can be used in isolated courses where unlimited application of knowledge is needed to generate new knowledge constructions, ideas, ways of thinking, or doing. It forms a paradigm shift both in terms of how to teach and in terms of being a student in a course. It is not possible to mix the principles of The Creative Platform with other traditions. The choice between the paradigm of The Creative Platform and any other paradigm constitutes a fundamental choice because it is a choice between being engaged in an experience on the one side and being at a distanced reflecting the experience. The reflective state represents a perception guided by knowledge structured in professions, ways of socialising as well as cultural traditions. The engaged state represents a perception without such structures.

The research has found that four pillars are important in order to create The Creative Platform in a course on creativity. These pillars are No-Judgment, Task-Focused, Parallel Thinking and Horizontal Thinking. On these pillars there are 6 stages that a course has to follow. These stages are preparation, the red carpet, presenting the problem, idea development, professional input, and the blue carpet.

The general findings from empirical data are that students find that they can produce more radical new ideas on The Creative Platform. Some have found themselves making fundamental changes in their work and private life after such a course. Working on The Creative Platform makes the students happy and gives them a positive experience on how many different problems they are capable of solving. Reproducing The Creative Platform is possible for the students in the period after a course; however, a group facilitator seems to be highly needed to replace the teacher's role.

In the following years we will continue doing research in how to apply The Creative Platform to teaching. We invite everyone to join in this quest.

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