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Byrge, Christian; Hansen, Søren

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# **The Creative Platform: A didactic for sharing and using knowledge in interdisciplinary and intercultural groups**

**C. Byrge, S. Hansen**

Ph.D. Student (corresponding author) Aalborg University, Department of Planning and Development, Fibigerstraede 13, 9220 Aalborg, Denmark, byrge@plan.aau.dk

Associate Professor Ph. D. Aalborg University, Department of Planning and Development, Fibigerstraede 13, 9220 Aalborg, Denmark, sh@plan.aau.dk

## **Abstract**

In interdisciplinary or intercultural groups, it is of vital importance that the members of the group are able to use and share knowledge across the standard boundaries that exists around disciplines and practices. Often a lot of effort, coaching and practice are required to avoid pitfalls such as production blocking, evaluation apprehension, misunderstandings, judgmental argumentation or just inability to understand each other's professional, social or cultural way of thinking.

This paper finds that *discussion* as a tool in interdisciplinary or intercultural groups is limiting the possibilities of using and sharing knowledge and experiences. The paper suggests replacing discussion with The Creative Platform as the tool for using and sharing knowledge and experiences, thereby replacing "limited" with "unlimited" use of knowledge and experiences.

Interdisciplinary groups are of vital importance. They are of particular importance when a diverse knowledge production is needed, e.g. for solving complex problems or for finding *new* solutions to existing problems.

The paper presents a didactic approach called The Creative Platform as an attempt to create a didactic for interdisciplinary and intercultural group work.

## **Keywords**

*Creativity, Interdisciplinary Group Work, Unlimited use of knowledge, Flow, Parallel Thinking*

## 1. INTRODUCTION

Along the coastlines in Alaska, during ice storms, there are major problems concerning removing ice from power lines. The following dialog about solving this problem is inspired by Michael Micalkos “taking a thought walk”<sup>1</sup>

- A) There are a lot of bears in Alaska; maybe we can use them somehow.
- B) Yes, we could make them climb the poles, thus making the power lines vibrate, so that the ice will fall off.
- A) ...and if we place fresh meat on the top of each pole, this will attract bears, and make them climb the pole to get the meat.
- B) Yes, and let’s bring the fresh meat in helicopters to the top of the poles.
- A) Then we need stockpiles of gasoline in the area for the helicopter.
- B) Hey, what about pouring gasoline on the wire and burn the ice away?
- A) Yes, or we could wrap heating elements around the wires to heat it off?
- B) Hey, how about we letting the helicopters hover over the power lines. Their hovering will vibrate the ice off the lines, thus solving the entire problem.

What they are saying could sound like it is just playing with thoughts, however these thoughts are filled with extensive knowledge from particular disciplines of knowledge.

The knowledge in the dialogue is not presented as theoretical or methodological explanations, neither is it a discussion where different ideas are positioned against each other and argumentation is used as a method for finding the solution. Rather they use creativity. Creativity makes it possible for people with different backgrounds to easily understand and contribute with their knowledge and experience to a problem-solving situation.

It is important to understand that a creative process is playing with diverse knowledge and experience. Let’s look at each sentence and identify the knowledge presented in the example.

*There are a lot of bears in Alaska; maybe we can use them somehow.*

- This sentence contains knowledge about the animal life in Alaska, and the idea that you can control animal behaviour.

*Yes, we could make them climb the poles, thus making the power lines vibrate, so that the ice will fall off.*

- This sentence contains knowledge that it takes huge strength to make the power lines vibrate from the poles, as the bears are needed (bears are strong). It also contains knowledge of the principle of “vibrating ice off”

*...and if we place fresh meat on the top of each pole, this will attract bears, and make them climb the pole to get the meat.*

- Here is knowledge that bears can smell fresh meat from long distances, as well as knowledge that bears eat meat. Also here is knowledge that bears are excellent climbers.

*Yes, and let’s bring the fresh meat in helicopters to the top of the poles.*

- This contains knowledge about the logistic problems in the coastline areas of Alaska. It also contains knowledge about, helicopters being able to fly very close to the top of the poles.

*Then we need stockpiles of gasoline in the area for the helicopter.*

- More knowledge about, logistical problem, of flying helicopters in this area.

*Hey, what about pouring gasoline on the wire and burn the ice away?*

- This idea contains knowledge about the heat capacity of gasoline.

*Yes, or we could wrap heating elements around the wires to heat it off?*

- This contains knowledge about the heating elements that “ice off” the rear window or the side mirrors of a car.

*Hey, how about letting the helicopters hover over the power lines. Their hovering will vibrate the ice off the lines.*

- This last sentence contains knowledge about the turbulence effect that is created from the helicopter, as well as the effect that it will have on the ice.

The main point of the dialog is that the ideas contain a lot of diverse knowledge combined to create a solution for the problem by using knowledge unlimited. Another point is that there is no analytical connection between the different ideas even though each idea clearly is inspired from the previous. The connection between the ideas is horizontal and based on principals or memes. The main principals are “*vibration of wires*” including the helicopter hovering and the bears climbing, and “*heating the wires*” including the heating elements and the burning of the ice with gasoline. These principals are used as mirrors that connect different disciplines of knowledge or cultures.

A dialog like this is only possible if the participants accept that all kinds of knowledge from all kinds of sources can be mixed and used without worrying about the status of the knowledge. It can be from any discipline. It can be scientific knowledge but it can also be experienced knowledge, from a TV program about bears or knowledge from a hobby. It does not matter as long as it can be used in the play of unlimited use of knowledge.

The dialog demonstrates that it is possible to enhance the use of knowledge and experiences in an interdisciplinary and intercultural group process if the group is allowed (and dare) to skip the dominating norms of communication that exists in companies and at universities, including logical argumentation, positioning of ideas (people), critical judgments and other kind of “good” behaviour in a discussion. The scope of this paper is to present a didactic approach which makes it possible for diverse groups to use their knowledge unlimited in a common creation that solves a complex problem or gives new solutions to existing problems.

## **2. CREATIVITY IS TO THINK ACROSS DISCIPLINES, PROFESSIONS, CULTURES AND...**

Johansson recently made a worldwide study of how world-changing ideas have been developed by their “idea-developers”. He finds that it happens at the intersection of knowledge from all disciplines, all cultures and all domains. Creativity occurs when the barriers between the disciplines, cultures and domains are removed. Johansson defines the intersection as the “place” where it is possible to use knowledge from one discipline, culture or domain to develop ideas for problems related to another discipline, culture or domain. He finds that only in the intersection will true *new* arise.<sup>2</sup>

Dietrich argues that creative thinking involves the ability to break conventional rules of thinking.<sup>3</sup> This alone gives the assumptions that you break down the limitations created by conventional rules of thinking. Dietrich continues that; combining already stored knowledge elements produces new ideas.<sup>4</sup> Here he brings in the ability to work across different kinds of knowledge, thus making the importance of unlimited use of knowledge even stronger.

Altshuller found”... that 95% of ‘new problems’ have already been solved - probably many times over”<sup>5</sup> And he continues that you most likely will find the solution in industries and technologies which you do not have knowledge about. In the 70’s and 80’s he invented TRIZ – a matrix system that link across fields of technology and across industries in order to find the best solution to your problem.<sup>6</sup> Altshullers findings are directly in line with the unlimited use of knowledge across industries and technologies.

These findings suggest that problem solving requires interdisciplinary and intercultural knowledge to be present in order to produce new solutions.

## **3. INTERDISCIPLINARY AND INTERCULTURAL GROUP WORK**

Practical experiences have shown difficulties in benefiting from interdisciplinary and intercultural group work. The difficulties identified in related to creativity in group work in general are primarily related to free riding<sup>7</sup>, production blocking<sup>8</sup>, group hierarchy<sup>9</sup>, norms and values<sup>10</sup> as well as evaluation apprehension<sup>11</sup>. In order to understand the complexity of this kind in interdisciplinary and intercultural group work, the metaphor of the brain as a library, is useful.

Imagine the brain as a mental library similar to a physical library. The physical library contains physical books of authors from many different disciplines and cultures, while the mental library contains mental books of all the experiences and all the knowledge that a person has obtained through his/her life. Any idea, emotion or thought is based on the knowledge we have obtained through our life.<sup>12</sup> Therefore our use of knowledge is limited to the knowledge we have obtained as individuals. In group work the use of knowledge will be expanded to more mental libraries, eventually making the total number of mental books much higher. The diversity in the individual mental libraries determines the diversity of mental books available for problem solving. From this perspective it would be optimal to have as many different kinds of mental books available in the group, thus giving the group most potential solutions to choose from.

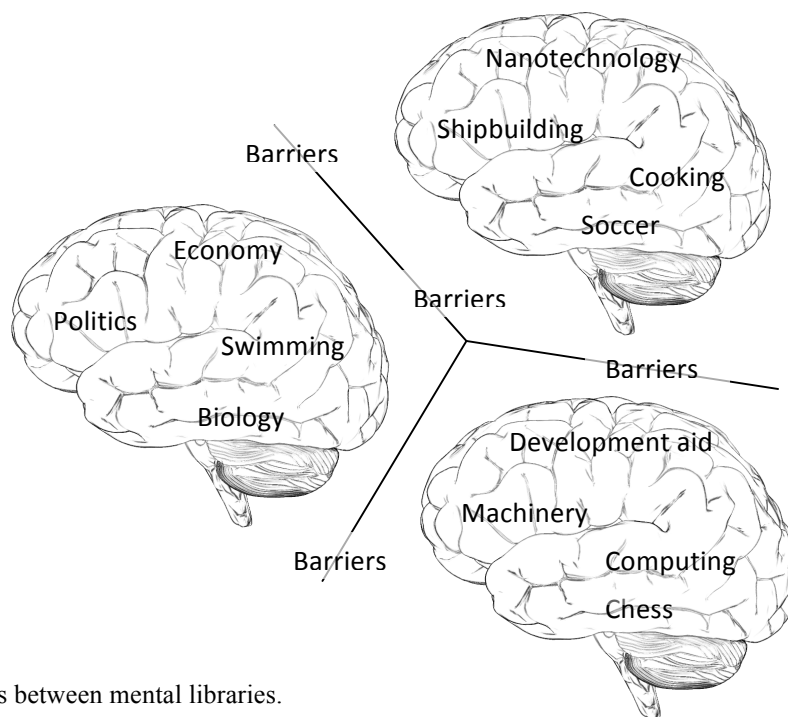


Figure 1: Barriers between mental libraries.

Figure 1 shows how knowledge is used and shared in group work where discussion is the tool for problem solving. The mental libraries are identified as individuals and have several barriers between each of them.

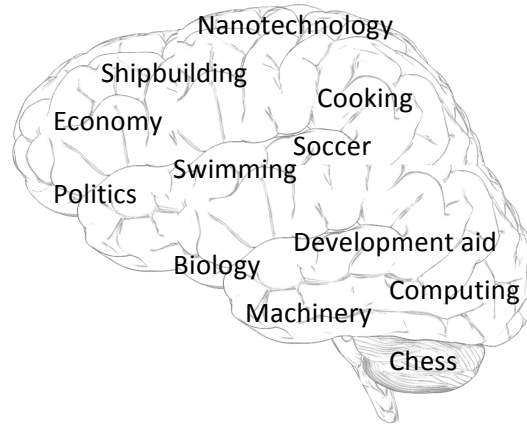


Figure 2: No barriers between mental libraries.

Figure 2 shows how knowledge is used and shared in a group working on The Creative Platform for problem solving. Here the mental libraries are identified as one huge library with no barriers between each of them, making it possible for knowledge to flow freely.

The main difference between the two is the barriers between the mental libraries, thus being the mental barriers between the members of the group. As long as these barriers exist we will have difficulties in benefiting from interdisciplinary and intercultural group work, and hereby we will have difficulties in finding *new* solutions. The key issues regarding the barriers between the mental libraries are identified to be *fear*, *focus* as well as *motivation*.

#### 4. THE CREATIVE PLATFORM

The Creative Platform is the idea of an ideal mental workplace for interdisciplinary and intercultural groups. On the platform it is possible for professionals from all kinds of disciplines and cultural backgrounds to use and share knowledge in a creative process. The Creative Platform consists of four pillars: Confidence, Motivation, Concentration, and Diversified Knowledge that all have the purpose of making it possible to use knowledge unlimited.

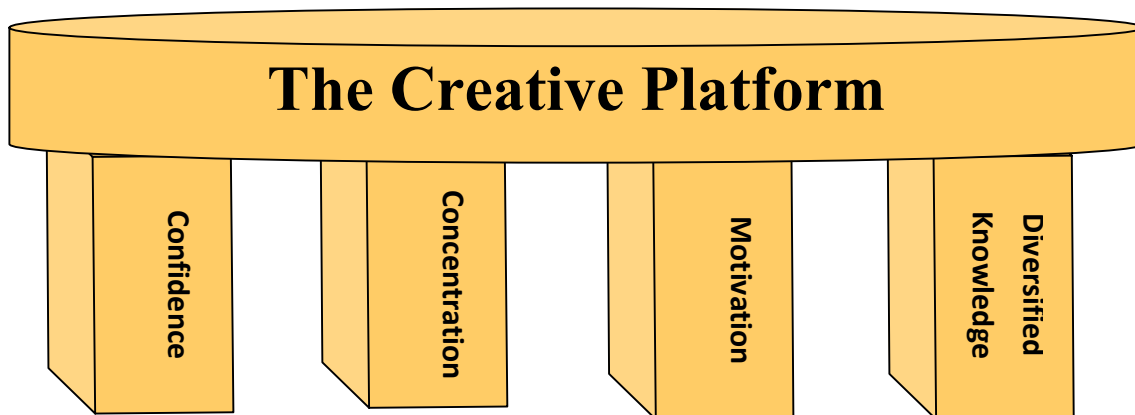


Figure 3: The Creative Platform is constructed on four pillars

##### 4.1 Confidence to deal with fear in a group process

The main barrier to group work is the fear that controls the openness of the communication among professionals<sup>13</sup> and in the literature there is a huge focus on the necessity of confidence in creative processes<sup>14</sup>. The Creative Platform is a *mental state* where the normal fear in professional relations is reduced. It is the fear of being wrong, the fear of being misunderstood, the fear of losing face, the fear of losing power and the fear of being judged. The key to reduce the fear is to remove any kind of judgement in the group. On The Creative Platform there is no room for judgement. This is the main difference between a normal academic discussion and working on The Creative Platform. In a normal academic discussion: people start to build a relation by introducing themselves, telling who they are, what they do, about their experiences and knowledge. Think about it – in this kind of introduction they reproduce and enhance the way they see themselves in a situation to which they already, by necessity, have certain expectations. The result of such an introduction is an individual reflection amongst the group members, which leaves the group with hierarchy and a set of expectations on how the members of the group are expected to behave and contribute. This is the mechanism called positioning.

On The Creative Platform people are introduced to each other by performing small activities together that creates common experiences. Right from the very minute a participant enters on The Creative Platform he/she is put into an activity. By doing this, the participants are left with no room for any kind of judgment from reflections. This makes them feel *confident* with the situation, since they do not have to behave or think in a certain manner. The behaviour is defined to be common for all on The Creative Platform. This approach to group work is inspired from Group Support Systems in which it is easier for the participants to avoid reflection in the group because of the anonymous and faceless communication. On The Creative Platform any social interaction is considered as elements that create room for reflection and therefore builds up an atmosphere of judgement. By avoiding the social interaction it is therefore possible to decrease fear and to create confidence.

#### **4.2 Parallel thinking creates concentration**

Barron and MacKinnon have explained the personality of creative people as being totally absorbed in and devoted to their work.<sup>15, 16</sup> Csikszentmihalyi defined this, not as a personality, but rather as a mode called flow, which all humans can step into. On The Creative Platform this personality or mode is created throughout the process.

Concentration in a group process can be explained by the identification of slow vs. flow modes of work. In the flow mode a group will only be thinking about the task at hand. In the slow mode the group will think about everything else than the task at hand. E.g. “what to do when coming home”, “when is it time for coffee”, “who is calling me on the phone now”, “what should we do after this task”, “why don’t we do this task in a different way?” etc. All these thoughts are not in direct connection to the task at hand, and therefore are causes of slow mode. When being in the flow mode, all other thoughts, than those productive to solve the task at hand, are not present.

On The Creative Platform the concentration is created by the use of parallel thinking<sup>17</sup>. Parallel Thinking ensures that all individual elements of the problem solving will be taken care of separately in the process once at a time. They will not be mixed and not be overlapping. Sternberg and Lubart identified the key to divide a process for problem solving into a large number of smaller tasks.<sup>18</sup> Each task must be possible to finish in no more than an hour for the group. The level of difficulty in the task should correspond relatively to the competences of the group.<sup>19</sup> Breaks are also identified as tasks of their own, so that there would not be a necessity for a break in any other tasks. All the identified tasks must be put in a line of process where the final task ends with the final solution to the problem. The time pressure should be right: there must not be too much time for each task, as it would only destroy the flow of the work.

It is important to be able to identify a possible distraction of the concentration when preparing a process on The Creative Platform. If a group member have something important to say about a task that will be dealt with later on, this will only be a distraction to the current task at hand and should be kept to himself. On The Creative Platform all participants always have pen and paper to write down these distractions for later use in the break or in a task later on depending on the relevance. If a participant wants to go to the toilet or wants to go smoking, he/she should just do it without any remarks or asking; “if someone also need to go”. It is the flow of the task and not of the individual that is important. If a participant cannot understand “what is going on right now” he/she should leave the conversation or the room. 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. Instead the confused participant should observe until he/she is able to understand again, and hereby capable of adding knowledge to the task again.

For parallel thinking to work it is important to prepare a process of a number of tasks, which ensures that all elements will be dealt with during the process. Participant's concentration follows from not being distracted by any comments, remarks or similar from each other as well as from the confidence they get from participating in the process that allows them to focus on one thing at a time.

#### **4.3 Motivation comes with following the process**

In the early studies of creativity a number of human factors has been identified to be of importance for the "drive of creativity". These were having a *purpose*<sup>20</sup>, having *passion*<sup>21</sup>, having *devotion*<sup>22</sup>, *driving absorption*<sup>23</sup>, as well as having *persistence*<sup>24</sup>. All of these have been regarded as the output of motivation.<sup>25</sup>

Motivation is one of the pillars for The Creative Platform. However, it is not any kind of motivation that builds up the platform. Some motivators actually have a negative effect. Amabile identifies two types of motivation: the intrinsic and the extrinsic.<sup>26</sup> She found that the intrinsic motivation is conducive to creativity while the extrinsic is harmful to creativity. It is on this ground that The Creative Platform deals with motivation through the intrinsic motivators.

On The Creative Platform there are no reflections in terms of discussions, analyzing, positioning or judgement. This is both the case between the participants as well as between the participants and the teacher or instructor. Roger found that creativity appears in the context of self-evaluation – not in the context of evaluation by others.<sup>27</sup> In a group working on The Creative Platform, focus is always at the problem at hand, and not on the participants and their collaboration. 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.<sup>28</sup> The same applies to the methods used during the process. Once the group is on The Creative Platform 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. It is never redone to produce more. In general The Creative Platform has an open space attitude that makes sure to remove any kind of extrinsic motivation.

In a situation where there is a prize for the best performing group on The Creative Platform, the groups will only be informed about the prize when the evaluation is over. It has been proven several times that "contracting for a reward" leads to lower levels of creativity.<sup>29, 30</sup> In a teaching situation the teacher will look out the window while the students are doing the tasks in order to avoid the feeling of external judgement amongst the students. It has been found that people are less creative when simply being watched by others.<sup>31</sup> In an idea generating process the participants are often told to close their eyes or place themselves looking into the wall in order to avoid the feeling of external judgement between the participants. There must be nothing to define who have produced most ideas, who have produced the one that is finally chosen or who has followed the process best. When the participants are communicating with each other it always happen in an improvised manner where the participants are playing with their knowledge. When you do not reflect on your use of knowledge it becomes uninhibited and it will be possible to play with it similar to the dialogue demonstrated in the beginning of this paper.

#### **4.4 Diverse knowledge leaves room for more and new solutions**

Amabile identified domain relevant skills as a key element for creativity in her componential model of creativity.<sup>32</sup> We also know from Johansson, Dietrich and Altshuller, as described earlier in this paper, that we need diverse knowledge for *new* ideas to appear. For The Creative Platform to reach it's optimal it will be a necessity to have a broad and deep base of knowledge, meaning that we have as many mental books as possible. From this point of view it would make no sense to put a group of children or homogenous people on The Creative Platform and expect something *new*.

### **5. CONCLUSION**

The Creative Platform is a didactic approach for intercultural and interdisciplinary group work. It creates a mental state where the participants diverse knowledge can be used unlimited in a collaborative knowledge creating process. It is an open space environment where the normal barriers to collaboration emerging from fear is removed and replaced with confidence, concentration and motivation.

The Creative Platform has proved to be successful in a number of settings which have in common that students and professionals with different background meet for a fixed period of time to solve a problem.



- As a didactic approach to interdisciplinary and intercultural group work at the university.
- As a method to establish collaboration between students and companies where interdisciplinary groups of students find new solutions to specific problems in companies.
- To build common R & D units for companies with different products and markets.
- As an alternative to brainstorming in starting up new projects.

The results from studies on The Creative Platform suggests that when implementing open space, confidence, concentration, motivation and parallel thinking - group work will be less judgemental allowing flow to emerge. The Creative Platform may be an interesting reaction to the paradigm of reflection that has dominated higher education during the last decade. Reflection and flow are both necessary in a working process. Experiences from using The Creative Platform suggest that they should be separated in an educational or working process. The Creative Platform is didactic optimized for flow.

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