

## **CREATIVITY IN PROBLEM SOLVING**

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### **ABSTRACT**

*The effects of training in a multistage “complete process of creative problem solving” on attitudes and behaviors of individuals were assessed both immediately after training and return to work. A controlled field “true” experiment was conducted within an engineering department doing applied research in a large industrial organization . multiple methods and measures were employed on trained , placebo , and nonplacebo groups . The process trained addressed three critical stages : problem finding , problem solving , and solution implementation, each containing a fundamental diverging –converging two –step process called “ideation- evaluation” . the main findings strongly suggest the training resulted in significant , systematically measurable effects both immediately after training and two weeks later and work. The trained participants were significantly higher in preference for ideation in problem solving , practice of ideation in both problem finding and problem solving ,and performance in problem finding . the data give rise to speculation that there may exist differing “optimum ideation – evaluation ratios” for each of the problem finding ,problem solving and solution implementation stages. These ratios may also differ by field of endeavor.*

### **Introduction**

#### **Creativity:**

The ability to use ‘imagination’ or power of mind to develop new and original ideas or things. Creativity can provide all the solutions to the complex problem of the workplace. Creative thinking is a positive, generative force that uses imagination to power business.

#### **Creativity in problem solving**

Creativity is the ability to develop good ideas that can be put into action. **Adaptive creativity** involves an existing system, whereas innovative creativity involves creating something new.

#### **Characteristics of creative workers**

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Creative people are more mentally flexible than others, allowing them to overcome the traditional way of looking at problems.

The characteristics of creative workers can be grouped into three broad areas, as described below.

1. Knowledge
2. Intellectual Abilities
3. Personality

### **Barriers to creativity**

1. Perceptual
2. Emotional
3. Intellectual
4. Environmental

**Identify obstacles** – do something about it.

For solving problems, divergent and convergent thinking can help

**Unlock creativity**- keep logic at bay.

### **Conditions for creativity**

**The characteristics of creative workers** can be grouped into three broad areas, as described below.

#### **1. Knowledge.**

Creative thinking requires a broad background of information, including facts and observation. Knowledge supplies the building blocks for generating and combining ideas.

#### **2. Intellectual abilities.**

Creative workers tend to be bright rather than brilliant and remain young in thinking and retain curiosity. The key to creative intelligence is insight, an ability to know what information is relevant, find connections between the old and the new, combine facts that are unrelated. See the 'big picture' – creativity can stem from both fluid intelligence and crystallized intelligence.

### 3. Personality.

Non –cognitive factors contribute heavily to creative . creative people are self-confident , can tolerate isolation and are often nonconformists.

#### How creativity comes?

1. Creativity takes place when three components come together, expertise , creative-thinking skills, and the3 right type of motivation . expertise refers to the necessary knowledge to put facts together.

2.Creative thinking refers to how flexibly and imaginative individuals approach problems.

3.Persistence and seeking ideas intentionally are also important.

4.The right type of motivation centers around fascination with or passion for ,the task rather than searching for external rewards .

5. Passion and intrinsic motivation result in the follow experience .

6. factors outside the person are also importance for creativity.

7. necessity is the mother invention .another condition that fosters creativity is enough conflict and tension to put people on edge .

8.encouragemene ,including a permissive atmosphere that welcomes new ideas , contributes to creativity .

9. finally ,humor is a key environmental condition for enhancing creativity.

#### TIPS

1. The problem as first stated is rarely the true problem ask at least five times. Always restate the problem as many ways as you can , change the wording , take different view points, and try it in graphical form.
2. Describe the problem to laymen and also to experts in different fields .
3. Don't try to learn all the details before deciding on a first approach
4. Make the second assault on a problem prom a different direction .
5. Transforming one problem into another or studying the inverse problem often offers new insights .if you don't understand a problem try explaining it to others and listening to yourself

6. Test the extremes “if can’t make it better try making it worse and analyzing what happens

### **Tips to solve problems creatively**

1. If the problem you trying to solve. Has already been solved by others ,learn that solution first , even if you intend to modify it.
2. begin by solving the simplest version of the problem
3. build your solution incrementally .
4. Avoid focusing on the single solution .
5. Avoid hidden assumptions .
6. Be patient and retain perseverance .
7. Don’t expect to find permanent solutions .

### **Improving creativity**

Many strategies and techniques can improve creativity ,and all of them help people move beyond intellectual constraints. The goal of these experiences is to think like a creative problem solver.

#### **1. Concentrate On The Problem Or Task**

At times , we think we are thinking intently about our problem ,yet in reality we may be thinking about something that interferes with creativity .distraction : they can hamper the development of new ideas .

#### **2. Overcome Traditional Mindset**

Mental flexibility helps a person overcome a traditional mental set , a fixed way of thinking about objects and activities . an affective way of over coming a traditional mind set into challenge ,the status quo.

#### **3. Discipline Yourself To Think Laterally**

Vertical thinking is an analytical , logical process that result in few answers in contrast , lateral thinking spreads out to find many different alternative solution to a problem. Critical thinking is vertical ,and creative thinking is lateral. To learn to thing laterally, develop the mental set that every problem has multiple solution.

#### **4. Conduct Brainstorming Sessions**

The best known method of improving creativity is brainstorming , a technique by which group members think of multiple solutions to a problem.

An important strategy for enhancing the outcome of brainstorming is to have and culturally diverse group members.

#### **5. Borrow Creative Ideas**

Copying the successful ideas of others is a legitimate form of creativity . business firms often borrow ideas from each other as part of bench marking.

#### **6. Establish Idea Quotas For Yourself**

Establishing idea quotas is similar to brain writing with a goal in mind . an easy way of getting started is to establish a monthly minimum quota of one creative idea improve personal life and one to improve school or job performance .

#### **7. Play The Roles Of Explorer, Artist, Judge And Lawyer**

Be an explorer by searching for ideas .be an arties by stretching your imagination and asking “what-if question. know when to be a judge by evaluating them at the right time.be a lawyer by negotiating to get your idea implemented.

#### **8. Challenge Your Roots**

A primary barrier to creativity can be doing the same things , the same way , every day . challenging your ruts ,or habitual a way of doing things , cat assist you in developing mental flexibility.

## **REFERENCES**

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