

No Need for Methods?

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Abstract

In the first part, the psychological mechanisms are explained, for example, why methods and tools are not appealing. This is especially the case in R&D. Really good ideas are often neither accepted nor realized. In the second part it is shown that you do not need to be a masochist to propose methods. Ways are shown, how methods and TRIZ could get a broader acceptance, or at least how hopeless situations can be recognized earlier, so we do not waste our time on them.

And finally, it is shown why and where, despite the resistance, it is worth going on with our support for TRIZ and other methods.

Keywords

psychology of problem solving, psychological defence reactions, problem solving methods, TRIZ, acceptance of methods

1 WHY METHODS?

“All life is problem solving.”

Karl R. Popper

Methods help us to think better and we think to make better decisions. Making better decisions means finding better solutions. So finally, methods help us to live better.

I ask myself, why the hell don't people want to live better?

If we want to understand this, we have to analyse how problems arise and how we think and make decisions.

2 THE CONSTRUCTION OF PROBLEMS

When we look at our environment our brain constructs a model of the situation. Signals from our environment are received by our sensors that are limited to a small spectrum of some physical effects (light, sound, temperature, etc.). Then these signals are filtered by our experience and our emotions. Finally, our brain constructs a model corresponding more or less with what we expect. The constructivists say: “Our brain constructs our reality.”

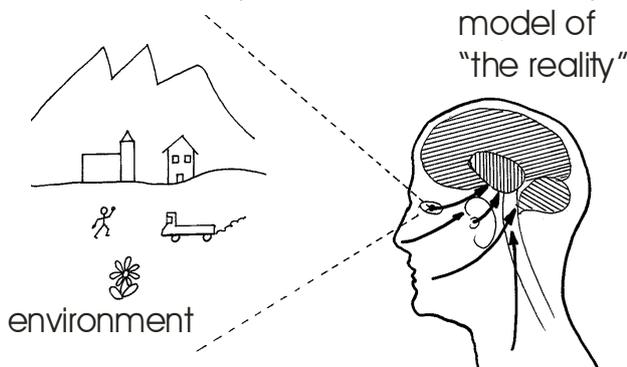


Figure 1: How we perceive our environment.

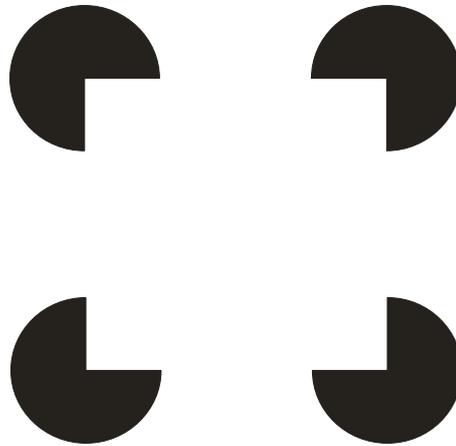


Figure 2: What do you recognize? Most of us see a white square which only exists in our brains.

If the model in our brain does not match our expectations, and the “how it is” is not equal to our “how it should be”, our brain produces negative emotions: scepticism, fear, aggression, panic, etc. These emotions influence our filters, produce distress and block our logical thinking (Ref. [1]). See Fig. 3

Conclusions:

- The situation itself has no relevance. Only if we compare it with our values our experience and expectations it gets a meaning.
- Stronger values produce greater problems.
- Our values are the result of our education, experience and culture. Therefore, our problems depend on our culture.

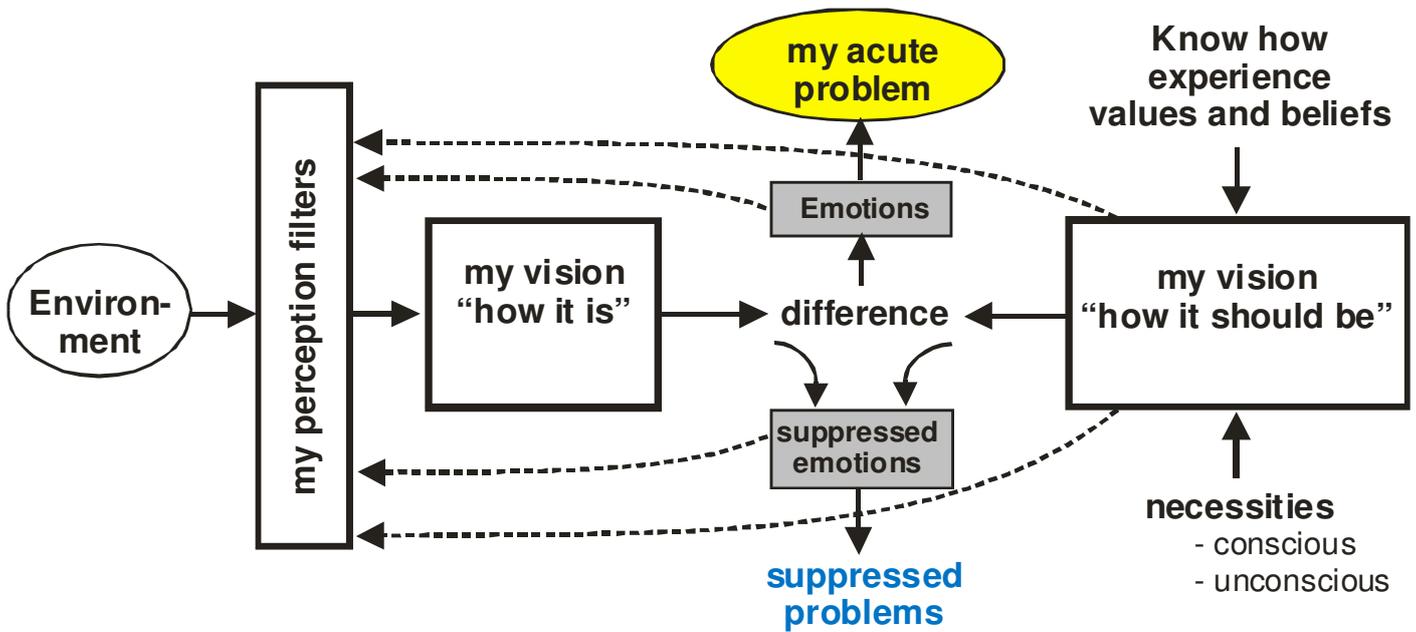


Figure 3: How we produce our problems

3 HOW WE CAN SOLVE OUR PROBLEMS

My problem is no longer an acute problem when I can live with the difference of the “how it is” with the “how it should be”. This means: only I myself can solve my problems.

Different professionals have their preferences on how they reduce the difference:

- Engineers try to change the world. They redesign and reorganise the systems around them.
- Psychologists and sales men concentrate on perception: Look at the positive aspects of my offer; look at the brighter side of the world; think positive!
- Politicians, priests and ethic commissions tell you what is morally right and wrong. You are often condemned to hell if you do not think like they do.

Conclusion: We do not want to solve problems. We only want to prove, that we are right.

4 BUT WHAT IF WE ARE NOT RIGHT?

4.1 Psychological defence reactions

If it turns out that we are not right, we are first of all frustrated and then we have 2 possibilities to cope with the new situation (see also Ref [1]):

- We can take the chance to learn something more about ourselves and our world.
- We can react with psychological defence reactions.

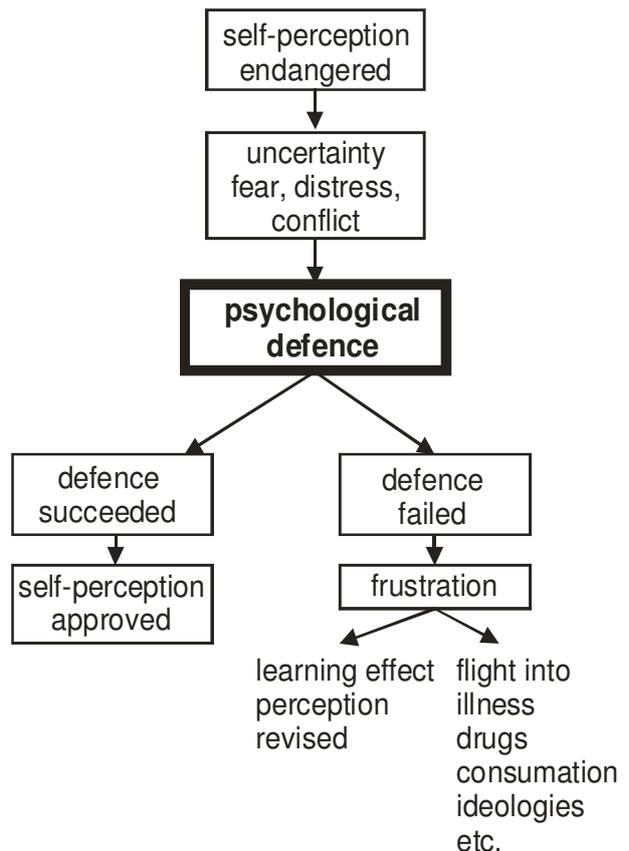


Figure 4: Reaction if our self-perception is endangered.

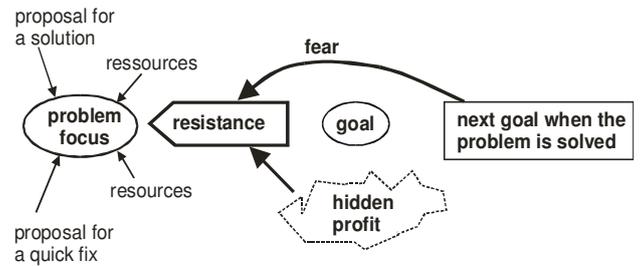
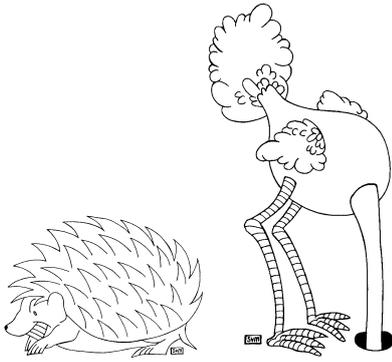


Figure 5: The hidden profit and the fear of the next problem are the sources for opposition

Freud's daughter classified different kinds of defence reactions. Most of them are useful to avoid TRIZ:

- apology / justification (e.g.: we have no time for TRIZ!)
- withdrawal / avoidance (e.g.: „In our company everything is completely different“)
- blackout / playing the victim (e.g.: “I am completely overloaded – nobody can expect me to also learn TRIZ”)
- shifting the conflict (attacking the TRIT specialist because of something else, so that he has no more motivation to introduce TRIZ)
- identification
- suppression
- projection (e.g.: TRIZ might be good for uncreative people who have no ideas themselves)
- aggression
- compensation
- regression
- sublimation

4.2 Defence is a very natural reaction

Each system that survives in nature tries to defend its integrity. If it is changed, it is no longer the original system and its original existence is in danger. Therefore, it automatically reacts with defence reactions as soon as if it sees its existence in danger. This is also true for our personality.

My personality, my “I”, is a model that exists in my brain. It consists of what I think that I am in this world. If new information and especially new ideas question my “model of the world”, my brain just reacts with distress and defence – without reasoning.

4.3 Hidden profit

Very often there are people who profit from an unsolved situation (Ref. [2]). Sometimes they themselves are not even aware of it.

The hidden profit can be of economic or more often of emotional nature. If you offer a good solution in such a situation you provoke panic reactions. (We became used to this problem. And just when we started getting use to it somebody comes and wants to take it from us.)

The success of the unsuccessful consultant:

Dr. Dietmar Zobel told me that he observed that after a two day workshop, despite being disappointed about the results, everybody seemed to be happy. All participants smiled and thanked him. And they hired him soon again. In another situation after a very successful workshop when he was really proud about the results, nobody thanked him. Despite the success, no one was really happy. For me it is clear, that in the second case, the customers had the impression that Dr. Zobel portrayed them at the end, as being not able. In the first case, the customers were convinced that they were OK, despite them not being able to solve the problem. This proves that there was no solution. Even the greatest specialist was not able to solve the problem!

In both cases, the customers were not very interested in a solution. Their only need was to hear from a specialist that they were OK.

Conclusion: *If we spread a new idea and we are not confronted with opposition we really have to question if there is anything new truth about this idea!*

4.4 Possible causes for opposition

The strongest opposition is always based on emotions (usually fear), and these emotions have different origins:

Personal Causes

- habits
- professional incompetence
- emotions (fear)
- envy and jealousy
- comfort thinking
- desire for harmony (change disturbs)

Structural reasons

- economic competition
- organisational reasons
- incentive systems (in the wrong direction)
- Ideology and religion

5 WHY METHODS PRODUCE EVEN MORE DEFENCE THAN NEW IDEAS

5.1 Methods in general

Methods do not only match with all the above causes, they even expect us to change the way we think. They question the way we have always thought! Isn't this terrifying?

Already in 1652 Balthasar Graciàn wrote [3]:

"The intellect is a royal attribute. Therefore every attack against it is a crime against the crown."

Spreading new methods is a crime against the crown of all successful intellectuals! It is an offence against people who have proved that they have always been successful with their natural intelligence. And now you come and want to teach me thinking or even to sell me software to support my thinking! I do not need a prosthesis for my brain! I am not stupid. I will not let myself be replaced by something like "artificial intelligence".

5.2 Why has TRIZ an especially low acceptance?

Besides the normal NIH (Not Invented Here) Syndrome, I have three more hypotheses why TRIZ has taken off so slowly:

1. TRIZ is not just a new idea, it is a method and against our traditional way of thinking.
2. TRIZ takes time to learn and needs continuous training.
3. For an average R&D employee there is no opportunity to use it often enough to become a TRIZ expert.

Edison said: "Innovation consists of 2% inspiration and 98% transpiration." TRIZ is for the 2%. The rest is dimensioning, detail design, design optimisation, cost optimisation, design for manufacturing, testing prototypes, etc. Most of the R&D activities are boring and not inspiring at all. Therefore the average R&D employee has little opportunity to solve problems with TRIZ. If he learns TRIZ, he will forget it until the next opportunity arises where he could use it.

6 TRIZ IN INDUSTRY

6.1 Some typical stories

Case 1: In a company that develops and produces installations for the building industry, the R&D manager buys CAI software and an intensive training for a team of volunteers. All R&D members get a short introduction in TRIZ and a presentation for what it could be useful. From the volunteers at the end remain two champions who regularly support other projects very successfully. After three years, the R&D management changes. One of the champions retires early and the other finishes a post graduate course and changes to another company. The new R&D manager is not fond of methods and newly hired employees are not interested in them either. After 3 years of successfully using TRIZ, there is no more TRIZ experience and no more interest in TRIZ in this company.

Case 2: In a world wide active company with three different product lines for machines and processing, TRIZ and CAI software is used in the central R&D support. At the beginning, there is only one champion that regularly uses TRIZ. With TRIZ courses the method and the ability to use the TRIZ software is spread to the different R&D departments (approx. 100 employees in R&D). Today there are three TRIZ specialists supporting the R&D projects. They still only use one software license and work voluntarily for all departments. Therefore, they are well accepted by the project leaders. The CEO is convinced about the value of this group and it is financed.

Case 3: In a big company with five product lines one of the R&D managers is convinced about TRIZ and wants to convince the other R&D managers to buy together several TRIZ software licences. They show no interest. He finally buys 1 license and organises an introductory training. For this training he also invites the R&D employees of the other product lines. The CEO reprimands him for his actions because he should not mix into the other profit centres. However some employees from the other product lines attended the training. Today TRIZ and the use of the software license is limited to some few specialists in R&D of the first product line.

Case 4: A company producing machines for food processing they has had a quality problem for more than two years. They call a TRIZ consultant. He motivates the R&D team to analyse the problem and after one day the problem is solved. The R&D manager thanks him for the support because so far, the problem has generated costs of SFR 800'000. - per year. Outside the R&D department this manager tells others that the TRIZ workshop was interesting, but they did not find out anything new. He also does not want to educate his employees in TRIZ.

6.2 How TRIZ can gain acceptance in industry

After 8 years of experience in selling CAI software, I have come to the conclusion that there must be three preconditions for TRIZ to be successfully introduced in a company culture. You need:

- A champion (better a team of champions)
- Management support
- Budget to invest in education and probably also in software

Most successful are companies where there is a team of consultants that support R&D project teams in solving problems with TRIZ and other methods (QFD, FMEA, etc.). Besides mastering the methods, the consultants' personalities are important. They must be people everybody likes to cooperate with. It is also important that these consultants work for free. Because the project leaders don't want to spend money when they do not know in advance what kind of ideas will come out.

The integration of TRIZ in the formal R&D process: If at each milestone the project leader has to justify to the management why he probably did not use adequate methods, more methods will be used. It is also helpful if successes, due to the use of methods, are reported in the company news. Otherwise, you will hear: "We have no time for methods and experiments. We have too much other work."

An alternative approach:

I heard, that selling a lot of expensive CAI-software licenses to the top management as the new medicine for more innovation, while avoiding the contact with the R&D specialists, should also be effective. With this acquisition the CEO can force the R&D department to become more innovative and more efficient. Because of the great investment, the interest of the management is guaranteed. This approach might work in a very hierarchical society; however in the companies I have met so far, I cannot imagine that this works.

7 WHY AND HOW SHOULD WE CONTINUE TO USE TRIZ AND OTHER METHODS?

7.1 First accept the reality

We are convinced that TRIZ is helpful – for us. But we also have to accept that TRIZ is – for different reasons – not attractive for most of the rest of the world. Do you know any other problem solving method that was quickly and widely accepted in industry?

7.2 Do not try to change the world

If you find friends who also like methods, be happy. If not, use the methods for yourself and find innovative solutions for your life. If you continue to want to change the world, you will only create problems for yourself. Your problems are then based on your ideas “how it should be” (The idea “everybody should use TRIZ” creates problems).

Be patient: for the acceptance of new ideas, it always takes much more time than we expect. And if you are the pioneer in your company, move on slowly and carefully, so that others can also follow you. Always remember the American proverb: “Don’t get so far ahead of the parade that people don’t know you are in it.”

7.3 If you want to be successful, sell the people what they really need, not what they say they want

Sometimes your good ideas are accepted. If not, concede that many people do not want to find solutions, but only want to prove that they are right. Their need is obviously not the problem they present you, but rather, to prove that they are right.

Tell them that they are right and that probably for their problem there is no solution. Do not say it openly as they would lose their face. Sometimes it has to be demonstrated otherwise – by an unsuccessful workshop. You, the specialist have to fail for them.

7.4 Continue to be a little bit unreasonable!

Finally, George Bernhard Shaw claimed:

The reasonable man adapts himself to the conditions that surround him. The unreasonable man adapts surrounding conditions to himself. Therefore all progress depends on the unreasonable man.

Therefore use TRIZ!

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