

Impact of Using Six Thinking Hats Method to Solve Issues Related to Creative Product Development: Case Study of Agnicubes Project

Rohan D.Kulkarni, Neha D.Kulkarni

Department of Mechanical Engineering
KLE Dr. M.S.Sheshgiri College of Engineering and Technology, Belagavi, INDIA

Abstract: Design and development of products is a common occurrence in engineering and management institutions. It often presents a problem of a synchronized and channelized thinking process when more than two people work on a project. Each person in the team may have varied ideas which are welcome, but the mode and the time of proposing such idea in a common platform usually creates chaos and disruption. Although various disciplinary measures can be taken to stop this type of disruptive behaviors in teams, it could only be temporary and on the surface. Applying the Six Thinking Hats method created by de Bono (1985) could have a positive and everlasting effect on team members as it will change each individual member's behavior from within. This paper reports on a case of the development of a innovative product which was to be designed and developed in limited time and had to be commercialized. The product was to be displayed in an exhibition and sold. This challenge was intense as it is not only the product design and development, but also working out the commercial aspects of the product like quantity, packing, branding, packaging, costing etc. The paper intends to show the impact and benefit of using the Six Thinking Hats collectively and creatively. This approach could help the team involved gain a better understanding of the problem concerned and improve their thinking skills in a fun, tangible and creative way.

Key words: Six thinking hats, creativity, problem solving, product development, innovation

I. Introduction

Any new idea about a project is an abstract thought or a skeleton. It needs the input of various technical and non-technical inputs from multi-discipline knowledge domains. A project or product in itself may not be feasible if it does not have the inherent value which can be commercialized and sold. The idea has to go on through many stages till a product is developed. Ideation, Collate ideas, feasibility study, design, develop, resource mobilization, produce, pack, commercialize and further value addition to present product.

II. The Thinking Process

Thinking is defined as the process of considering or reasoning about something. Many authors have thrown light on the thinking process. Kahneman explains the two systems that drive the way we think. System 1 is fast, intuitive, and emotional; System 2 is slower, more deliberative, and more logical. Kahneman exposes the extraordinary capabilities—and also the faults and biases—of fast thinking, and reveals the pervasive influence of intuitive impressions on our thoughts and behavior.

Although business education students perceive critical thinking as an important skill (Davis, Riley, & Fisher, 2003), they typically do not know how to think critically. Students are not born with the ability to think critically, and their prior learning experiences often do not require them to think critically. Therefore, instructors who wish to integrate this skill in their classroom experiences must first model the behavior (Hemming, 2000). Students must learn how to think critically before they can apply the skill to content scenarios. Thinking has various modes: objective thinking, emotional thinking, negative thinking, positive thinking, critical thinking and creative thinking. de Bono (1985) used six different colours to represent these different thinking modes and created the Six Thinking Hats method. Haynes and Bailey (2003) emphasized the importance of asking the right questions to stimulate students' critical thinking skills. Other researchers (Brown & Kelley, 1986; Hemming, 2000) also focused on integrating questioning techniques into class discussions where students can demonstrate and practice critical thinking skills. Brown and Kelley's book, asking the Right Questions: A Guide to Critical Thinking documented the premise that students' critical thinking is best supported when instructors use critical questioning techniques to engage students actively in the learning process by questions like:

- What do you think about this? Why do you think that? What is your knowledge based upon?
- What does it imply and presuppose? What explains it, connects to it, leads from it?

- How are you viewing it? Should it be viewed differently?

Of the many literature available about thinking and critical thinking,, this paper adopted the Six Thinking Hats for their research and experimental study.

III. The Six Thinking Hats

The six hats are actually imaginary hats. It symbolizes the type of thinking during that specific time. When all the team members are asked to wear a specific color hat (imaginary), then all will be in the same type of thinking process. Each color of hat signifies the type of thinking as given below:

White Hat

When you think of white, think of neutral. de Bono has categorized information as a neutral subject. The white hat has to do with only data and information like: What information do we have here? What information is missing? What information would we like to have? How are we going to get the information? When you ask for white hat thinking at a meeting you are asking people to forget about proposals and arguments and to concentrate directly on the information. What information is needed, what is available, and how it can be obtained.

Red Hat (Intuitive , emotions and feelings)

When you think of red, think of fire and passion. The red hat allows people to show their emotions on a subject, their gut feelings. People don't need to justify their statements.

Black Hat (Negative, caution)

When you think of black, think of negative, or caution. The black hat is for critical judgment. It points out what cannot be done. The hope is that the black hat role will prevent us from making mistakes.

Yellow Hat (Positive)

When you think of yellow, think of the sun and sunny, positive thoughts. The yellow hat role is for discussing ONLY the positive view of problems and solution possibilities. The yellow hat looks for benefits (and feasibility), but must be logically based,

Green Hat (Creativity, out of box, adding new dimension or value)

When you think of green, think of plants and growth. The green hat is for new ideas, for creativity, for new alternative solutions like: Could this be done in another way? Might there be another explanation? Does anyone have another idea?

Blue Hat (Control and decision making)

When you think of blue, think of the sky and an overview. The blue hat is the hardest one to understand. It deals with controlling the thinking process. The blue hat is often "given" to one person, who controls what hat will be "worn", hence controlling the type of thinking being used. The different colours don't always follow in the same order. The blue hat comments on the thinking being used, asks for conclusions, decisions, etc. The blue hat can move from person to person, or can be a chairperson.

IV. Evidence of Six Thinking Hats Outcomes

There were four students of Mechanical Engineering (Three girls and a boy) of the institute who were to develop an innovative and commercial product. This product was to be displayed at an exhibition named PUPA held at KLE Tech. University, Hubballi, Karnataka during October, 2018. The PUPA organizers give a funding of Rs. 500/- per team. Around 480 projects had registered for display.

The biggest challenge was to think what product can be designed. So right from thinking to product development and commercialization can have a great deal of input information. Hence, getting the "Thoughts" organized was important. The following steps were taken:

1. Introducing de Bono's Six Thinking Hats method in the team with highlight on the colour features of this thinking method;
2. Presenting the problem of product and discussing only about thought type as per the hat color involved;

After due deliberations, it was decided to produce AGNI cubes that is explained further. This background is required now to enable how the Agnicubes concept was decided using Six thinking hats. What are AGNI cubes?

- Agnihotra is performed in the morning during Sunrise and in the evening during Sunset with a Mantra and ritual. This is done by lighting a fire in a Agnihotra vessel and put dung cubes, rice and ghee. The burning

of this has a very positive effect on the health and energy levels of human beings. All the three ingredients have to be put in the fire individually.

- However, many people may not be able to do it like a ritual. Hence, the same principle is used SANS the Ritual and Mantras.
- The ingredients used in Agnihotra are modified and Three other ingredients are added for greater effect viz: Charcoal powder, Fragrance, Bay Leaves and Camphor.

People find it difficult to get the ingredients of AGNIHOTRA viz: Cowdung Cakes, Ghee, and Unpolished Rice. AGNI CUBES is a premix of the ingredients used for AGNIHOTRA with addition of Bay Leaves and Charcoal Powder with fragrance. The Fragrance is derived from Essential Oils (from plants) and are non-toxic in nature. Agni Cubes comes in simple pouch with all the ingredients premixed to avoid cumbersome work. The package comes with the Agnihotra Pyramid and Two pouches of AGNI CUBES costing Rs. 450/- each and Rs. 10/- per pouch for additional pouches.

Based on the features of the Six Thinking Hats coined by de Bono (1985), the project team deliberated in the following sequence to get the product finalized:

White Hat Thinking (Only information and statistics)

- Product is to be designed which should innovative and saleable and Product should have commercial value.
- Where is the information about Agnihotra available and other additional ingredients
- Where are all the materials available.
- What is the principle of Agnihotra and where is the pyramid available

Red Hat Thinking (only emotional points)

- Some members felt that Agni cubes is novel and some felt that it is needed by people.
- Some said it is affordable and it will have good response
- One felt it may not work for all the demographics.
- Some feel the product will help in relaxation

Hence, since all team members were emotionally positive with the product, it was decided consider the production of the product subject to other analysis of thoughts.

Black Hat Thinking (Negative aspects of product)

- Many people of other caste or religion may not buy.
- Cost is high and basic method of use is compromised.
- Product needs other equipment support for use.

Yellow Hat Thinking (Positive points)

- It can help users get rid of stress and Everyone can use the product easily
- It makes the environment healthy since it Purifies the air and surroundings.
- The magnetic field created by Agnihotra homam neutralizes the negative energy and intensifies the 'prana' and positive energy.
- Benefits circulatory system and purifies blood and renews brain cells and rejuvenates skin.
- Offers nutrition to the plants.

After completing the group views on this issue from four directions represented by the colours of white, red, black and yellow, the team members were encouraged to move on to creative thinking by 'wearing' the Green Hat first and then the Blue Hat aiming for the best solutions:

Green Hat Thinking (Creativity, out of box, adding value)

- Establishing a proof of the benefits of using the product and make pouches equal to a one-time-use with instructions of how to use.
- Sell a combipack ie: Agnihotra pyramid and cubes together and sell Agni cubes in packets of 14 for repeat customers (2 per day) with easy to open plastic pouch like a Zip lock pouch.

Blue Hat Thinking (Decision making and controlling)

At the end of this problem-solving session, it was decided to open the discussions and work out the options of product development after going through the six thinking hats analysis. A professor was given the charge of wearing the Blue Cap to facilitate Decision Making and to take the proceedings to a logical end. Finally it was decided as below:

- A small Copper Pyramid costing Rs. 160/- to be purchased.

- Manufacture Agni Cubes of 75 Grams with all the ingredients as per the secret combination and Pack it in zip locks and put a sticker with all details of Manufacturing date, ingredients, expiry date, MRP, and instructions for use.
- Delegate the work to complete before deadline.

V. Conclusion

As per deBono, (http://www.debonogroup.com/six_thinking_hats.php) the team involved in a project or product development learnt the following:

- **Maximize** productive collaboration and minimize counter productive interaction/behavior
- **Consider** issues, problems, decisions, and opportunities systematically
- **Use** Parallel Thinking as a group or team to generate more, better ideas and solutions
- **Make** meetings productive and hence **Reduce** conflict among team .
- **Stimulate** innovation by generating more and better ideas quickly and alternative solutions
- **Spot** opportunities where others see only problems enabling to **Think** clearly and objectively
- **View** problems from new and unusual angles and **Make** thorough evaluations
- **See** all sides of a situation and **Keep** egos in check and **Achieve** significant results

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