AWARENESS SESSION AT NOBØ ELECTRO

NOBØ ELECTRO AS

Developing the next generation heating systems

Company's profile

Nobø was started in 1918 as a producer of metallic buckets and binding under the name "Norsk Bøttefabrikk" (Norwegian bucket factory). This gave Nobø comprehensive knowledge and experience within treatment of thin steel plates. This competence was used to start production of electrical heaters in 1948.

In 1971 the company moved from Trondheim to the neighbour city Stjørdal, closer to Trondheim Airport Værnes. There they now have now a production facility of 17.000 m^2.

Nobø has long traditions for high quality products with timely design. Nobø is now one of Europe's largest producers of electric heaters. They also produce thermostats for room- and floor heating and automatic control system for electrical energy saving. Nobø's products are exported to more than 20 countries around the world.

Place and date of the sessions

Stjørdal, Norway, 14 March 2005

Presenters/ facilitators

Ottar Bakås, SINTEF Technology and Society

Bjørn Braathen, SINTEF MRB

Application field

Product development

Creative Phases involved

Predisposition, Idea Generation, Evaluation

Description of the participants

The awareness session was attended by many high-ranging managers at Nobø, including the CEO and the chairman of the board of directors. All central functions in company operations were represented at the awareness session. The composition of the group attending this session was made of 6 managers with the following roles:

- CEO
- Company chairman
- CTO, Chief Technical Officer
- Sales Manager
- Product development Manager
- Process Improvement Manager

Agenda of the session

Time	Session	Phase
09.00 – 09.15	Introduction to the CREATE-project	Predisposition
09.15 – 09.45	Creativity and creative techniques	
09.45 – 10.15	Presentation of 'Provocation and Movement'	Idea generation
10.15 – 10.30	Break	
10.30 – 11.15	Exercise with 'Provocation and Movement'	
11.15 – 12.00	Lunch	Idea evaluation
12.00 – 12.30	Presentation of 'Six Thinking Hats'	
12.30 – 13.00	Exercise with 'Six Thinking Hats'	
13.00 – 13.15	Break	Idea generation
13.15 – 13.45	Presentation of 'Morphological Analysis'	
13.45 – 14.15	Exercise with 'Morphological Analysis'	
14.15 – 14.30:	Break	Idea generation
14.30 – 15.00	Presentation of 'Creativity Templates'	
15.00 – 15.30	Summary and conclusions	Overall evaluation of awareness session
15.30 – 16.00	Feedback and final discussion	

Description of the session

PREDISPOSITION PHASE

The first presentation ('Creativity and creative techniques') had the purpose of raising the awareness of the team about the importance and usefulness of creativity.

Further, it worked as a motivation for the participants to use the creative techniques in the following presentation. The group less enthusiastic in the beginning of the session, but as soon as one started with practical examples the group became excited and enthusiastic.

Feedback

- The introduction could have been shorter, presented with less theory and with more practical examples of application and benefits

IDEA GENERATION PHASE

❖ Provocation and Movement

After presenting the technique "Provocation & Movement", the facilitator invited Nobø to find a focus area where the company wanted to find improvements. The employees stated that they wanted to work on finding innovative ways to sell their products in the future. Then they listed a set of known facts about today's situation. Examples

- Electrical heaters are sold through large chains, household department stores and electricians
- Electrical heating is becoming less popular
- Governmental regulations are important influencers of the market
- Design is not an important element of their products today

Based on these facts, a set of provocations were listed on a flip-over. Together, the representatives selected the provocation they wanted to continue working with. The selected provocation was:

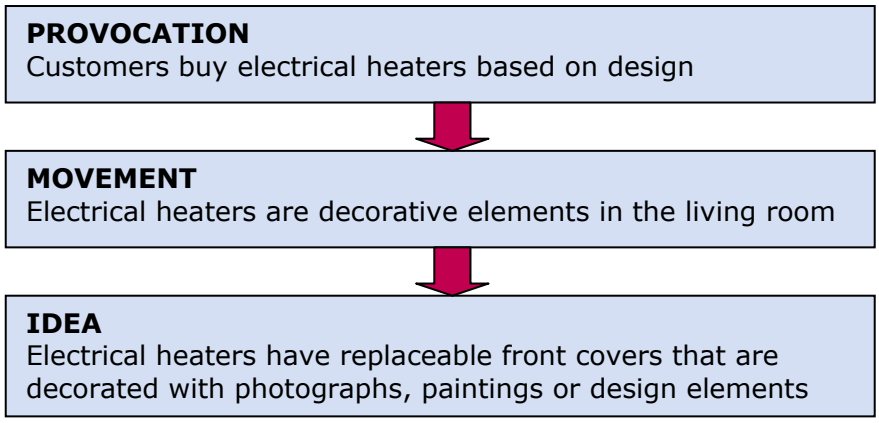
> *"PO: Customers buy electrical heaters based on design"* (provocation method: Negation)

Then each person in the group was challenged to state movements. The different methods for generating movements were employed. A wide range of movements were listed, among them:

- Design elements can be used on electrical heaters
- Electrical heaters are decorative elements in the living room
- The front cover of the electrical heater can work as a paining or photography
- The next generation of electrical heaters will be hung on the wall in the living room

After some discussion around the topic, the company came up with the following idea:

> *"We can develop an electrical heater with replaceable front covers that are decorated with photographs, paintings or design elements."*



Feedback:

- The group felt in the beginning that it was very unnatural to state 'illogical' provocations
- After completing the session, they felt that the method was very useful for generating ideas they would not have though of in other cases

❖ Morphological analysis

The technique was presented and received much enthusiasm from the company. The exercise followed the following process:

1. Formulate the problem as clearly as possible
2. Find the relevant parameters for the problem
3. Find the possible values/ variations to the parameters
4. Examine several different combinations of the values
5. Select the best combination and articulate the idea

Nobø wanted to try the technique on a current problem of theirs:

"How to avoid a certain steel heater to bend when reaching a certain temperature?"

Then the group started to find the different parameters of the problem:

- Properties of steel
- Materials
- Processes
- Customer needs

The main challenge in the exercise was for the company to find the most suitable parameters of the problem and assign the right values to them. In this process, facilitator noted all suggestions on the flip-over as the participants came up with the alternatives. Then the most appropriate parameters were and selected and the table was drawn on a white board.

The following is a short version of their matrix:

	Steel properties	**Materials**	**Production**	**Customer needs**
1	Length	**Aluminium**	**Automatic**	Price
2	Weight	Steel	User	Placement
3	**Reaction to heat**	Glass	Manual	**Energy**

After the matrix was created, the participants started to play with ideas from different combinations of the values. Many ideas were created, particularly related to using aluminium in combination with steel as it reacts differently to heat.

Feedback:

- The participants really enjoyed using "Morphological analysis"

- The techniques was found to be very useful for generation new ideas in 'locked' situations
- It was stated that the technique was ideal for engineers as it is a very organised way to finding new solutions!

❖ **Creativity templates**

The technique was given an in-depth presentation, as four variations of the technique exist. In agreement with the company, this session focused on presenting each of the four templates in the technique:

- Attribute dependence template
- Component replacement template
- Component displacement template
- Component control template

Due to the fact that this presentation was prolonged, an exercise of this technique was not conducted.

Nobø Electro's CTO, CEO and Chairman of the Board is listening eagerly to the presentation of Creativity Templates

Feedback:

- The technique 'forces' people to be radical in their thinking (what do we do when the legs of a chair is gone?)
- 'Creativity templates' can be an essential tool for challenging your regular mind set.

EVALUATION PHASE

❖ **Six Thinking Hats**

The concept of 'Six Thinking Hats' was presented with focus on application and examples. For the exercise, the company was asked to find a topic that was currently being discussed in the daily operation of the company. The company selected to discuss new ideas of how to improve the functionality of one of their current products (thermostats for rooms and floors).

The facilitator stressed that the discussion should go on as if they where alone. The group itself decided to employ the following sequence of 'hats':

Idea brainstorming for improving current product

1. **GREEN:** creativity to provide new ideas
2. **YELLOW:** New possibilities from the idea
3. **BLACK:** negative aspects of the idea
4. **RED:** enthusiasm and gut-feeling about the idea

- **WHITE:** in each phase to provide necessary information about the idea
- **BLUE:** in each phase to steer the discussion, focus on the idea and to create results

The discussion itself had a very technical nature, but the discussion was very vivid as it was a hot topic in the management. The facilitator only made a few interventions to make the participants aware of which 'hat' they were using at the moment, when the speaker himself forgot to state this to the rest of the group.

Feedback

- The technique is a great tool in management of group processes
- The most valued advantage with the technique is that you avoid that several people look at the issue from the same perspective.
- Improves knowledge of what type of 'hat' you are wearing in regular discussions.
- Major challenge for use of the technique: to implement this form of discussion in the entire organisation.

Conclusions

The awareness session ended with a discussion about the importance of creativity and the applicability of the presented techniques.

These were the main points from Nobø about the techniques:

- They were very happy with the presentations and exercises
- The threshold to employ the techniques seem very low
- The techniques challenge what is considered to be "known facts" in the company
- 'Morphological analysis' and 'Creativity templates' were the two favoured techniques

Nobø also stated a few suggestions for such awareness sessions:

- Hold a follow-up seminar where the techniques are applied in specific projects in the company
- Less focus on theory and more focus on practical examples in the introductory presentations
- Refine the examples used in the presentations

All the participants from Nobø Electro gathered around the table