

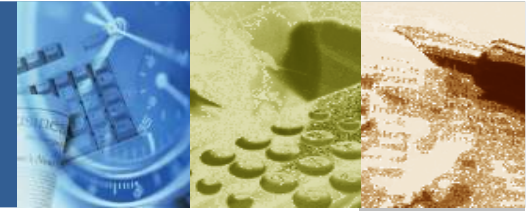


Utilization of Concept Mapping Program at NPP Engineer Training

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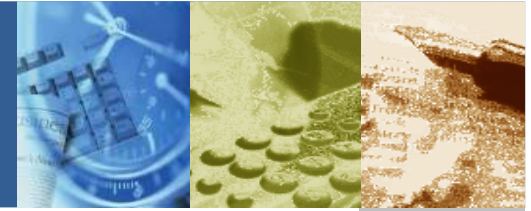
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1. Introduction



- ❑ Knowledge is the most **important factor** in the safe and reliable operation of the NPP.
- ❑ KNPEI(KHNP Nuclear Power Education Institute) performed a research from March 2006 for 18 months **to capture the experience knowledge** from senior staff and **transfer** it to junior staff.
- ❑ As part of the research activity, KNPEI set up a **Concept Mapping server to capture the experience knowledge of the senior staff.**

1. Introduction



- ❑ Cmap(Concept Map) has characteristics to present conceptual knowledge with **easy cognition** to human.
- ❑ KNPEI is currently utilizing the Concept Mapping Program at **NPP engineer training**

2. Characteristics of Cmap Program

To understand a conceptual knowledge is to know the relationship between existing concept embedded on his head and a new concept.

- ❑ A key characteristic of Cmap is to present the relationship between each conceptual knowledge.
- ❑ The Cmap presents the upper concept and the sub concept with explaining the relationship between the two.

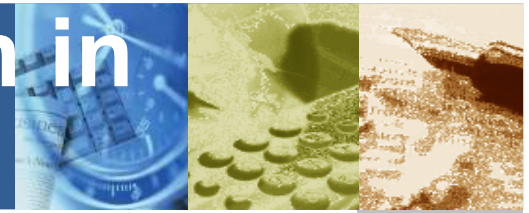
2. Characteristics of Cmap Program

- ❑ **Cmap presentation method is similar to the human cognitive structures, so it is effective to engineer training**
- ❑ **This program also has functions to link all kinds of information to the related concept including other concept mapping files, which makes it useful to give additional understanding to trainees about the conceptual knowledge.**

3. Utilization of Cmap program in Classroom Training

- ❑ Eight classroom training subjects were selected to be used for the trial training after the training for instructors was completed in the use of the Concept Mapping Program.
- ❑ It took about eight hours on average to convert each existing Power Point presentation training material into Concept Mapping training material for one subject.

3. Utilization of Cmap program in Classroom Training



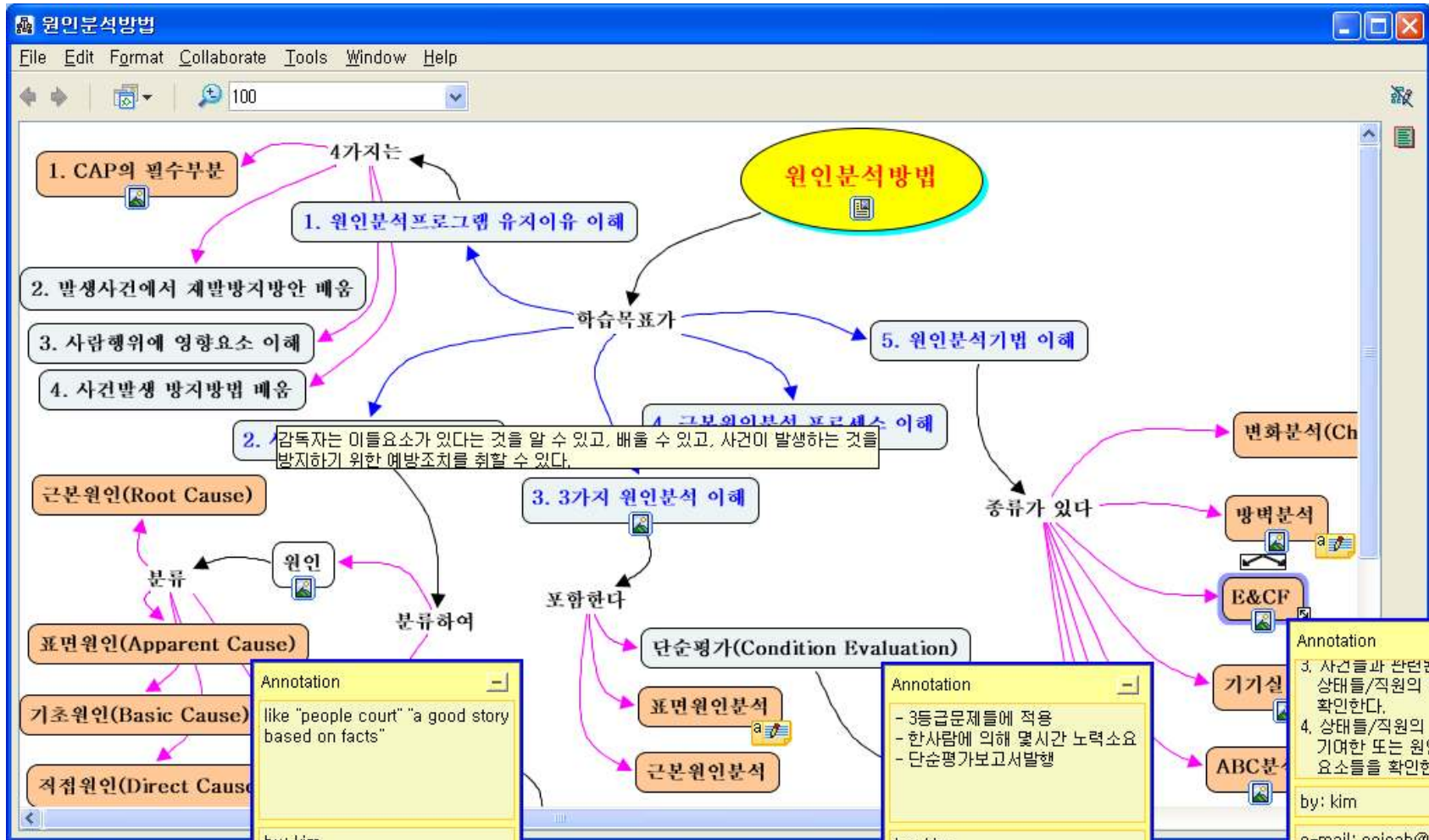
- ❑ To enhance understanding level by trainees for the training subjects, various reference materials were linked to the lecture Concept Map file
- ❑ This training material was stored in the Concept Mapping server to be used in classroom training.

3. Utilization of Cmap program in Classroom Training



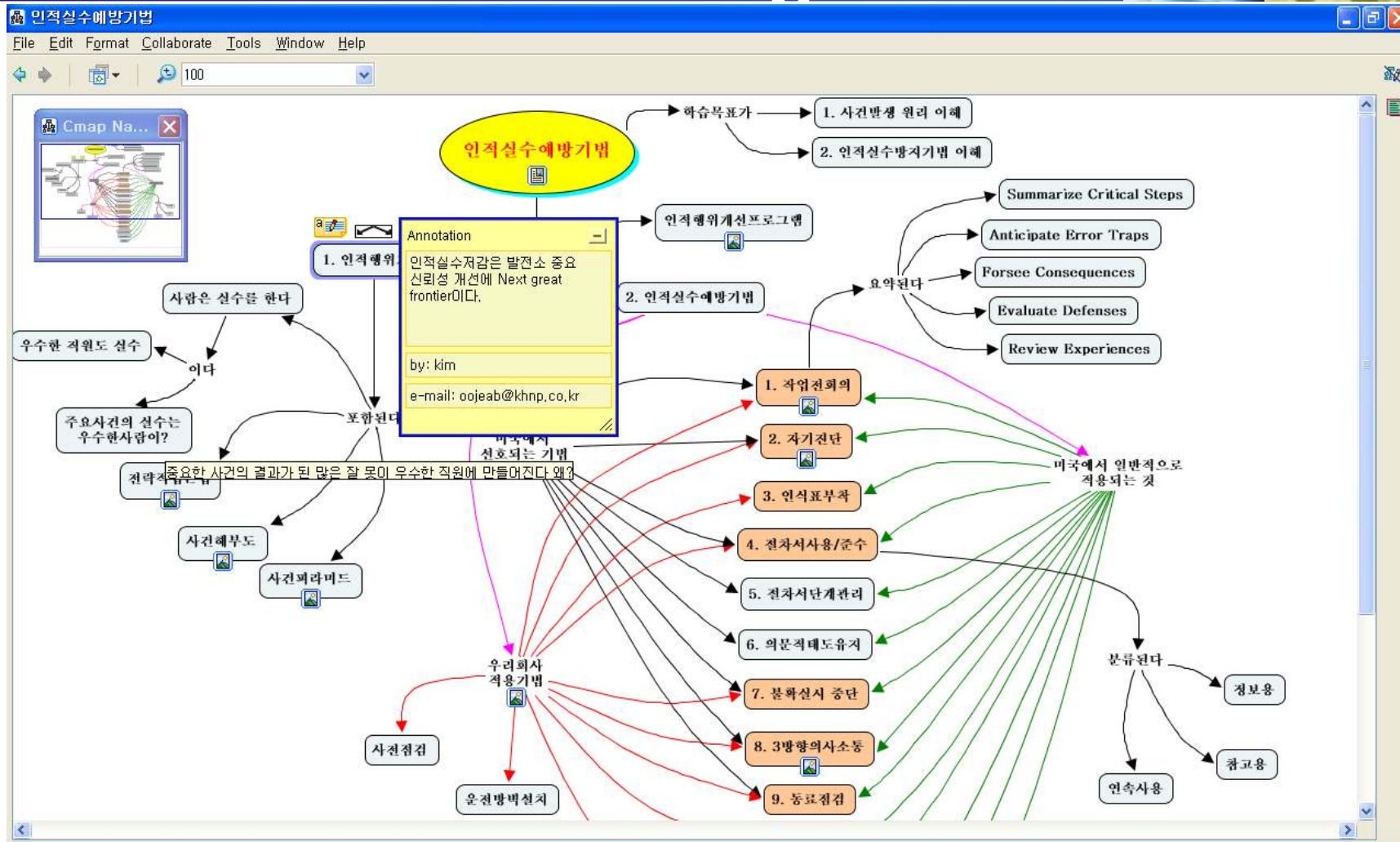
<Concept Mapping Server Including Training Material>

3. Utilization of Cmap program in Classroom Training



<Training Material Example made with Concept Mapping Program about Subject of the Root Cause Analysis Method>

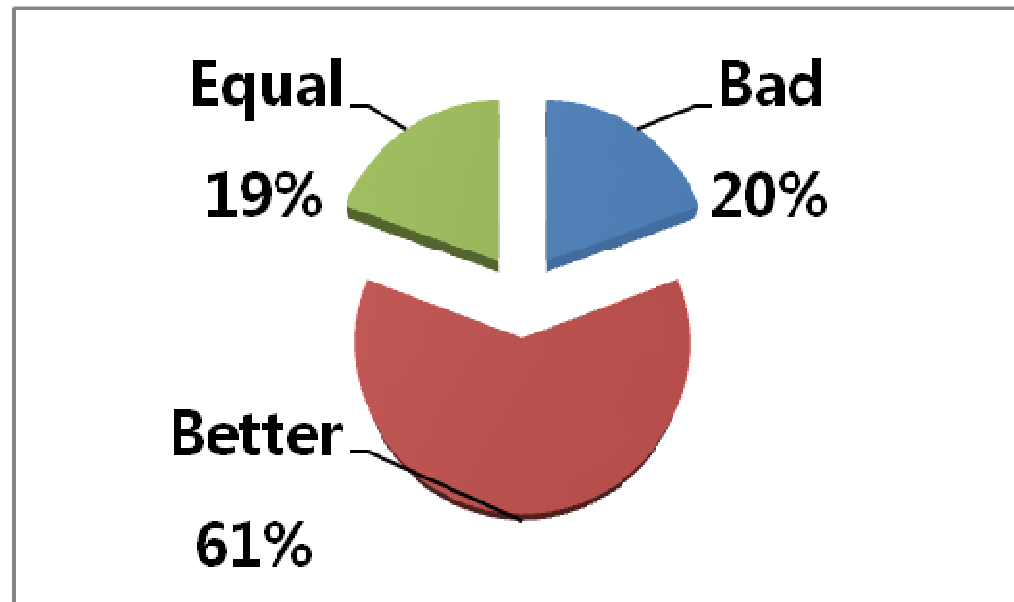
3. Utilization of Cmap program in Classroom Training



<Training Material Example made with Concept Mapping Program about Subject of the Human Performance Enhancement>

4. Analysis of Training Effectiveness

Shows an example of the survey result for questions about the understanding level of the lecture material with the Concept Map compared to existing Power Point training material.



<Survey Result about Understanding Level for Training with Concept Mapping Training Material>

5. Conclusions

- ❑ **Concept Map is more in tune human cognitive structure and results in better understanding.**
- ❑ **Classroom training activities for engineers can be carried out more effectively with the Concept Mapping Program due to the knowledge presentation characteristics of the program.**