

# Knowledge management: the tool of the conceptual map in the evaluation of a seminar on safety and security

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#### Introduction

It can be said that the population, in general, has already heard or even used equipment that involves the issue of Nuclear Energy. However, the majority of the population does not understand the effects generated by Nuclear Energy on living organisms, especially on humans, thus showing the need to build a more accurate and informed knowledge about radiation in a formal learning situation. Therefore, there is a growing need for the nuclear area to promote a more open dialogue with the public, increasing public acceptance, mainly due to the fact that it is a risk technology [1]. Therefore, all risk technology refers to risk communication, which is directly associated with risk perception, considering the difference between how the risk is perceived by the public versus how the risk is effectively assessed and measured by the specialists. In fact, the purpose of risk communication is not to force a shift between the divergent views of the specialist and the public, but it is a matter of developing an understanding of these factors so that they can be considered and treated [2]. One possibility that opens to realize this communication of risk, as well as for a better understanding of the uses of Nuclear Energy, would be through Knowledge Management (CG). This is because the CG has been applied in order to create the necessary conditions for greater access to communication in a clear and rich way. Therefore, knowledge management aims to promote an integrated approach to identifying, capturing, evaluating, retrieving and sharing information, which in this case may be databases, documents, policies, procedures and an institution [3]. The tool in question was the Conceptual Map. Conceptual Maps are a tool that can gather knowledge of individuals and groups, facilitate the process of knowledge creation, function as a means of discussion and communication, and help in the distribution of knowledge and learning processes within an organization [4].

#### Metodology

The Institute of Radioprotection and Dosimetry (IRD), an institute linked to the Brazilian Nuclear Energy Commission (CNEN), responsible for radioprotection procedures, has been carrying out various teaching activities to improve the understanding of nuclear energy concepts, as well as offering continuing education courses for professionals in the area. One of these activities is the Postgraduate Educational Course in Radiation Protection and the Safety of Radiation Sources (PGEC), offered by the Institute of Radioprotection and Dosimetry (IRD). The course is free and has been designed to meet the needs of professionals with higher education equivalent to the university degree in physics, chemistry, health and earth sciences or engineering and have been selected to work in the field of radiation protection and safety of sources of radiation in their countries. The course provides the basic tools needed for who will become instructors in their area (train multipliers). Divided into modules, it includes theoretical part and practical training, with demonstrations, laboratory exercises, case studies, technical visits, simulation exercises and workshops. Some theoretical topics and exercises use the virtual classroom of the course. One of these modules in question is a workshop offered annually, always with topics that are relevant to knowledge in the nuclear area. In the year 2017, the theme was "Safety and Security: Harmonization and Action". At the workshop, the main concepts related to radiological and physical safety applied to radiative installations were discussed, discussing the applicability of these concepts in the industrial and medical areas and proposed actions to harmonize the performance of professionals, as well as presentations on the issue of radiological threat and its consequences potential, and the Brazilian structure of radiological safety and physical security. Immediately after the seminar, a class on Conceptual Maps was given, since



most of the students did not know the tool. The students were then asked to give a summary of the seminar as well as a conceptual map of the seminar, in order to verify if they had identified the main concepts discussed, as well as the relation between them.

#### Results

The students of the PGEC then made an evaluation of the Workshop, giving a summary of each presentation, as well as a Conceptual Map relating the main concepts. In discussion with the students, one can verify the importance of the Workshop. For example, for the student T. "Participation in this seminar has contributed positively and enrichingly to knowledge related to radiological and physical safety. It was possible to have an overview of what has been happening in Brazil and in the world in relation to aspects of radiological safety and to know a little more about the experience of the lecturers in their areas of practice. It is extremely important that events such as these can be perpetuated by professionals in the areas, in educational institutions, organizations, regulatory bodies, facilities, etc. so that there is a constant dissemination of knowledge".

#### Conclusions

It is possible to verify the importance of the workshop, with the participation not only of the students of the PGEC, but also of external participants. Regarding the students' learning, it was verified that many did not know some concepts discussed at the event, showing the importance of discussing topics relevant to the area. About Conceptual Maps, students understood it as a powerful tool for the concept learning process.

#### Referencies

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