

Improving metacognitive skills in geosciences to preserve the quality of divulged information

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The commitment to communicate and divulge the knowledge acquired and/or produced during the course of his professional activity, has certainly always been one of the ethical duties of the geologist and/or the geoscientist. Nowadays this duty must be pursued paying also great attention to the quality with which the information is expressed, both orally and in written form, given the much greater spreading that it usually undergoes through the Internet. Thus it has become part of the ethical duties of the geologist to take care of the quality of the information and knowledge he produces. Consequently, it has become crucial for Universities and teaching Institutions to devote some efforts to improve the metacognitive skills of all those who work and are involved in the broad field of the earth sciences. Metacognitive skills are in fact essential to reach a high quality of communication. Metacognition can be defined as the process of thinking about thinking and developing self-awareness and the ability to self-assess. It is contemplation about one's education and learning - past, present, and future – which implies knowledge and control of one's learning processes. During experimental classes devoted to improve metacognitive skills, it was often discovered that people who have higher-order thinking abilities, lack the communication skills needed to relay them adequately. It may also be difficult for them to convey some of the more abstract or complex ideas. The reason that has been found for this situation is a lack of training in communication and a too poor mastery of lexicon, which becomes a severe shortcoming in an era of great proliferation of our dictionary due to the strong undergoing technological development of our society. A specific research carried out within the IRPI Institute to improve this scenario, has led to the creation of a specific training and to the development of specific exercises devoted to the enhancement of communication and expressive abilities, through the improvement of metacognitive skills. This particular training has been recently proposed to the engineers of the Order of Engineers in Turin, as part of the offer for their permanent education. The program was intended to improve the ability of participants to both understand and learn with ease any kind of written text or oral talk and also to improve the quality of their expressive and communication capacities. The results obtained and the feedbacks received have been extremely positive. People with a very high level of education have in fact discovered, nevertheless, that their metacognitive and communication skills could be noticeably improved. The goal has been reached in a relatively short time (about 30 hours of lessons). The training has been already proposed to five different groups of engineers, during the course of 2015 and 2016, reaching more than one hundred people. The participants have reported an increased awareness of their thought processes and a significant improvement of their communication abilities. This has allowed to envision the possibility of a general improvement of the communication skills and of the quality of the available information in the entire field of geosciences.