

## *Content analysis and critical thinking – An assessment study*

An important passage in the 2010 OECD (Organisation for Economic Co-operation and Development) report *Investing in human and social capital* underlines the need for formal education to enter the workplace: “in the nations where work is organized to support high levels of employee discretion in solving complex problems, the evidence shows that firms tend to be more active in terms of innovations developed through their own in house creative efforts” (OECD, 2010, theme 1, p. 10). The key point is in fact that new skills are needed, because traditional skills learnt at school or at university are disappearing and are not deemed useful in facing the needs for innovation and growth that society today demands: “recent trends show sharp increases in the demand for task input requiring complex communication (...). Similar increases have occurred in the demand for non routine analytical skills, involving solving problems for which there are no rule based solutions, and requiring individuals to develop skills of problem solving and inquiry based learning throughout their education” (OECD, 2010, theme 2, p. 5).

The concept behind the project, carried out at University Roma TRE and widely described on the full length contribution, is therefore that of verifying the effectiveness of a model constructed to increase critical thinking skills, which is essential in environments such as those described by the OECD in the abovementioned documents. As previously mentioned, the ability to evaluate critical thinking skills is important in facing the urgent need for renewal and innovation, especially in education, with the view to establishing policies aimed also at increasing social welfare and inclusion.

The research, *Contributions for the Definition of a Critical Technology* is set within this context and, as well as implemented in higher education, aims to project its results into different settings, so that the results can contribute to improving other areas, such as lifelong learning and enhancing development in various fields of knowledge. The project principally aimed to assess the hypothesis that, in providing further cultural insights according to well-defined models on which to undertake guided discussions coordinated by an experienced tutor, the critical thinking skills of students involved increase. This is made possible through the development of an *ad hoc* online module, *Critical thinking skills and reading of the classics*, available to students in Education (Faculty of Education Sciences) since the academic year 2011/2012. In order to assess their critical thinking skills, the students' written productions were treated with a lexicometric analysis using the *Taltac* software, and with content analysis, through the above mentioned adaptation of the Newman, Webb and Cochrane (1997) model. The main categories of the analysis include *relevance, importance, introduction of new ideas, information and solutions, reference to personal experience and opinions, clarification of doubts, new knowledge, elaboration of new solutions, critical evaluation, practical use of new solutions, width of understanding.*

The results obtained by applying the adapted version of Newman, Webb and Cochrane's model are reassuring: through further cultural information provided online, the development of university student's critical thinking skills was promoted. The ability to think critically and therefore to make functional use of what is learnt is what the OECD report itself mentioned as vital if wanting to enhance the development of new skills and in particular skills that are effective for growth and innovation in complex organisations. This study is an attempt to demonstrate that technology, if used as a tool and adequately inserted in a strong didactical structure, can represent a valid solution for improvement.