School and 2.0 Technology: Tuning in Students' Digital Competences

di *Mariaconcetta Miasi**

"Scuola e tecnologia 2.0: sintonizzarsi sulle competenze digitali degli studenti" (School and 2.0 technology: tuning in students' digital competences) is the sixth of a cycle of meetings started in 2011 and whose main topic was "La scuola come risorsa: riprendiamo a progettare il futuro" (School as resource: going back to plan the future). The seminar was held on January 19th 2012 at Frentani Congress Center in Rome and it originated from this premise: it is known that web 2.0 technology is pervading different contexts of the Western culture. Therefore, school must play an instructional role encouraging the development of digital competences suitable for learning, civilness and active citizenship. Students have partly competences about the use of technology and this is the reason they need to be enhanced and included into the instructional curriculum of every school. Effective psychopedagogic models are needed in order to educate students to the development of digital competences in using 2.0 technology. Following this premise, the purpose of the seminar was to share strategies and experiences useful to implement, in an educational view, the technological skills of the so called "digital natives". The seminar saw the participation of teachers, researchers, outside experts and students and was held by four invited speakers (Stefano Cacciamani, Donatella Cesareni, Antonella Fatai and M. Beatrice Ligorio) whose contributions had the common intention to share experiences coming from the implementation of technology at different levels of education (from school to university).
Key words: *digital competences*, *collaborative learning*, *research community*, *blended learning*, *Interactive Whiteboard*, *online collaborative writing*.

The seminar "Scuola e tecnologia 2.0: sintonizzarsi sulle competenze digitali degli studenti" (School and 2.0 technology: tuning in students' digital competences) was held on January 19th 2012 at Frentani Congress Center in Rome and was organized by Associazione Context[1], a society made up in 2008 by a group of Italian scholars of Developmental Psychology and Educational studies. Adopting a theoretic framework based on a contextual and situated vision of every process of knowledge acquisition, Context aims to promote and foster innovative research in educational and instructive fields, from kindergarten to university.

This seminar – the sixth of a cycle of meetings[2] started in 2011 and whose main topic is "La scuola come risorsa: riprendiamo a progettare il futuro" (School as

* Sapienza Università di Roma.

resource: going back to plan the future) – originated from a premise: it is known that web 2.0 technology is pervading different contexts of the Western culture (working life, everyday life etc.). Therefore, school must play an instructional role encouraging the development of digital competences suitable for learning, civilness and active citizenship. Students have partly competences about the use of technology and this is the reason they need to be enhanced and included into the instructional curriculum of every school. Effective psychopedagogic models are needed in order to educate students to the development of their digital competences in using 2.0 technologies. Therefore, the purpose of the seminar was to share strategies and experiences useful to implement, in an educational view, the technological skills of the so called "digital natives" (Prensky, 2001).

"Scuola e tecnologia 2.0" saw the participation of teachers, researchers, outside experts and students and was held by four invited speakers (Stefano Cacciamani[3], Donatella Cesareni[4], Antonella Fatai[5] and M. Beatrice Ligorio[6]) whose contributions – faithfully collected in the present report – had the common intention to share experiences coming from technology implementation at different levels of education (from school to university).

The contribution of Cacciamani "Una comunità di ricerca online a scuola" (An online research community at school) moved from the fundamental assumption that people are living in a "Knowledge Society", a socio-cultural context characterized by continuous technological innovations, by globalization and by the presence of a great amount of information coming from different sources. Using the author's words, knowledge is considered as «the crucial coin that represents the wealth of a society». The technological evolution consists of three important steps: 1. the rise of textual media in 1971 and the mass-diffusion of the e-mail; 2. the rise of Web 1.0 in 1979 and the integration of textuality with hypertextuality; 3. the rise of Web 2.0 in 2000 and the development of tools like Forums, Wiki, Blogs, Social Networks, which emphasize the interactive dimension as the *core* of technology usability. Dealing with the reach of these innovations implies that society, in particular the education system, must equip people with key-competences like working with knowledge creatively, working collaboratively, being able to use technology, building knowledge in order to be able to face every day and professional issues. Following this premise, Cacciamani introduced the *Knowledge Building Community* model (KBC) (Bereiter, 2002) as a theoretic framework which is surely trying to face the challenges coming from the Knowledge Society scenario. An attempt to describe the main feature of this model was given by a comparison with Karl Popper's distinction between different *Worlds* (Popper, 1972; cit. in Cacciamani, Giannandrea, 2004): *World 1*, based on physical reality; *World 2*, based on individual knowledge and representations; *World 3*, based on a knowledge considered as a system of shared, collective ideas which concretizes and modifies through the artifacts of a social community. Cacciamani highlighted the fact that when we talk about learning

we think about a process of improvement of an individual's knowledge, in which the social interaction sets up as an instrumental support. But when we talk about knowledge building we must think about a process which is strictly connected to *World 3* and that reveals a double social dimensions: 1. improving the knowledge of a community; 2. the need to realize that this process is not possible without the creation of research group working through problems, hypotheses, new information, objections, revisions etc. Thus the focus moves from individual learning to a collective knowledge building activity. After a brief illustration of the 12 basic principles of the KBC model (Scardamalia, 2003) as a set of conditions useful to create a context in which the community can work, the author talked about the possibility to see this model in action, through the parallel development of a specific online learning environment called *Knowledge Forum*[7] (Scardamalia, 2003), showing some results (Scardamalia, Bereiter, Lamon, 1994; Mason, 2006) – coming from the implementation of the whole model in some Canadian schools – in terms of an improvement of writing, reading and computing abilities, vocabulary, comprehension of science problems, metacognitive awareness, more mastery achievement instead of performance etc. The use of technology in classroom seems to dive students into a learning environment in which every problem is examined through a collaborative interaction with teachers and peers. The act of writing reveals its double objective: it mediates a cognitive activity of thoughts organization, on one side, and it fosters and support a process of building, creating, problematizing through an interactive shared context. The second part of the contribution aimed to share a specific experience of implementation of the KBC model into an Italian context. The project – called *SeT-CROSS – Comunità di ricerca online per lo studio scientifico*[8] (*Online Research Community for Scientific Study*) – was articulated in three editions (from 2003 to 2009). It involved a network of classrooms of Macerata and its aim was to foster the diffusion of scientific-technologic culture all over every instruction level through two important actions: 1. provide resources in order to improve tools, structures and the didactic organization of scientific-technologic teaching; 2. create support and learning opportunities for all those teachers involved in this disciplinary field. The project also aimed to catch Bereiter and Scardamalia's model challenge and, by putting its principles in practice, wanted to build a research community which could be able to involve a large network of classrooms of different instruction levels and keep them in touch through distance activities. On the whole, the project was based on five cycles, each of which devoted to a particular scientific area (*e.g.*, pollution, nutrition, garbage disposal etc.) that gave life to a specific science education path. Every cycle followed a general design-based research approach with six fundamental steps: 1. introduction of the shared research theme; 2. training on an online environment; 3. shared planning of the path through blended activities; 4. monitoring the activities with classrooms; 5. setting a final poster-congress in which the involved classes exposed their artifacts

coming up from their knowledge building activity; 6. final evaluation. Each of the five cycles also followed an epistemological research schema based on: *a*) the observation of a phenomenon and the definition of the problem; *b*) hypotheses about the causes of the phenomenon and data collection in order to verify them; *c*) hypotheses about possible solutions and implementation; *d*) diffusion of the research results. Every group was provided with an online learning environment based on virtual classrooms in which the students could start their collaborative inquiry process about the specific phenomenon. The environment was based on a webforum, a space in which the members could post their materials and a section containing news about the project. Cacciamani stressed some successful factors coming out from this multi-year experience: the importance of a group coordinating the network as the key to set the environment and the diffusion of the outcomes; the community of teachers who plan, monitor and evaluate together the development of the path of each class; the community of classrooms, supported by technology in the research process, which fosters and enhances cooperation and continuity; the role of the tutor as facilitating the good functioning of the groups, their planning activities, their online and in presence interactions; the use of an common epistemological scheme as a guide for the cooperative inquiry of the community.

The contribution of Cesareni "*Blended learning* a scuola e all'Università" (Blended learning at school and university) moved from the concept of *blended learning*[9] and focused on two important issues: 1. the conditions that might create a "good-quality" blended learning; 2. the contexts in which a blended learning can be implemented, with special reference to school and university and to possible advantages and problems this implementation might implicate in these contexts.

In reference to the first issue, the author highlighted the fact that a "good quality" blended learning lays on a concept of teaching that is different from its traditional meaning of a mere process of knowledge transmission; it should rather be based on a model of "knowledge building" – coming from the socio-constructivist paradigm – in which the learner has an active role in this process and the emphasis is on the social construction of knowledge through cooperation between students, in a context that is meaningful to them. Examples of the implementation of blended learning at school were shared through some projects whose common intention was to enhance the use of technology as a way to communicate, to open the classroom to different long-distance cultures and realities in a perspective of working collaboratively for building knowledge (*Euroland*, *Via dal nido*, *Isole in rete*). Euroland, for example, is a research project (1999-2000) that involved students, teachers and researchers of two European countries (Italy and Holland) with the aim of planning and implementing an educative virtual world in which a cross-cultural comparison could be possible. The students, active part of the project, took part to all its steps through activities, in classroom and online, making decisions, taking

responsibilities, assuming the features of a *Community of learners* (Brown, Campione, 1994) and a *Community of practice* (Wenger, 1998). Projects like Euroland, in Cesareni's opinion, represent an important challenge for school because of the potential advantages for the students: opening towards other worlds and cultures; diversity considered as a resource; the importance of motivation; learning a correct use of the net; taking responsibilities about their own learning; flexibility in terms of time and place, participation, with particular regard to the concept of *Legitimate Peripheral Participation* (Lave, Wenger, 1991). However, these potentialities also imply some important issues in terms of rethinking school: a strong change of its didactic organization, especially in secondary schools; setting every classroom as a knowledge building community, which impacts the role of the teacher; the importance of creating artifacts, as a concrete track of the knowledge building process; the importance of metacognition; the need of assuming a different perspective in matter of evaluation in order to take into account its dynamic aspects, its focus on processes and products, together with students.

The last part of the contribution focused on the implementation of blended learning at university. Examples were given by some of the courses of Pedagogy and Educational Technology as part of the curriculum of the Faculty of Medicine and Psychology of Rome. Cesareni reported some activities done by students on *Moodle*[10] platform focused on the creation of cognitive artifacts as a way to represent the process of students' knowledge building process (*e.g.*, collaborative writing on a blog, collaborative summary of e-books chapters which are part of the study plan, discussions about specific topics of the course getting started by the teacher through open questions, movies, specific tasks, class work in small groups in order to build a conceptual map to be shown and discussed with colleagues and the teacher).

In conclusion, the author emphasized the advantages of blended learning in comparison with traditional learning and with e-learning, giving relevance to the social dimension in terms of more various interactions, motivation in knowledge building, improvement of technological and metacognitive skills, time-space flexibility, being an active part of a process of knowledge building, the role of the teacher as knowledge facilitator, responsibility not only about the individual but also of the group's learning. Issues and recommendations were also stressed: an increase of time to teachers for organizing and monitoring online courses; an increase of time to students too; the risk of not being able to control the discussions contents; the problem of online evaluation; the need of monitoring all those social aspects which indicates that a group is not working; the importance of the tutor figure and its scaffolding role.

The presentation of Fatai "*Focus* sulla LIM (Lavagna interattiva multimediale)" (*Focus* on the IWB – Interactive Whiteboard) aimed to outline the history, the features and the potentials coming from the use of the Interactive Whiteboard (IWB) in education, with particular regard to high-school.

Starting from the diffusion of this tool from 1991 (in North American and British primary and secondary schools initially) to 2006 with its diffusion in the Italian school system through different projects (*e.g.*, *Digiscuola*, *Innovascuola*, *Scuola Digitale-LIM* etc.), the author talked about some specific features of this tactile interface as a set of tools that allow teachers and students to interact with the computer through a large white screen to which the pc content can be projected. As a matter of fact, on a IWB it is possible to write, to project videos, to select and to move images or other multimedia objects by using a digital pen or hands, to save a lesson on the pc in order to use it in a second time and make it available for students. One of the most important characteristics of the IWB emphasized by Fatai is the possibility to manipulate a text and all the objects projected on its screen, which represents, in the author's opinion, a step forward compared with other ways of using digital resources in an educational way. Every file created during the process of a classroom activity can be saved in multiple ways (static, audio, video or both audio-video); this feature promotes educational documentation, a very important aspect of teaching, but also the possibility to use every material in different contexts through years, encouraging teachers to share the products of their classroom activities with other colleagues of the same discipline, enhancing the opportunities of cooperation, the comparison of ideas and reducing the time needed to prepare a lesson. Great attention was paid to another feature of the IWB: the possibility to hand every classroom activity file out among students as a possible way that can facilitate home study and metacognition because it allows the student to re-examine, alone or in cooperation with other students, every single step of the activity made in classroom, refining the capacity of thinking about the content and the process as well. All of the above potentials can make students capable of paying more attention to multiple dimensions: the process of building and sharing meanings with others, the interaction with peers and teacher, a conscious integration of what they are learning and experiencing with their own knowledge about the topic. Moving from her educational experience, Fatai underlined the potentials of the IWB in a teaching perspective: for example, a math teacher who is setting the materials for a lesson by using the IWB can also propose exercises and a page containing the correct answers at the same time, giving students the possibility of an immediate feedback, with advantages in terms of consciousness, errors correction. This turns into a great saving of time which allows teacher and students to have much more of it devoted to their out-and-out didactic activities. In addition to that, the possibility of using any software installed on the pc connected to the IWB and to access the internet enhances the materials availability and, as a consequence, the entire educational activity. The whole learning process, as Fatai highlighted, changes its traditional meaning because connections are created between different resources and different languages, a written word is integrated with other codes which give it more strength in semantic sense, with advantages on the cognitive and expressive level.

In conclusion, Fatai reported some researches results about the use of the IWB as a tool that: *a*) facilitates different ways of accessing to information (visual, auditive, tactile etc.) (Beeland, 2002); *b*) arises participation in terms of much more engagement and participation of students (more answers, more interventions, more questions etc.) but also implying less exactness, preciseness and accuracy in answers (Smith, Hardman, Higgins, 2006); *c*) facilitates learning, adapts to the cognitive structure of students, arises motivation and keeps attention up (Smith *et al*., 2005); *d*) gives great relevance to different individualities. She also mentioned a study of Warren (2003) who suggests some guidelines for lessons planning: 1. the need to build contents as open as possible which give space to interconnections, by including resources as the spur for discussion in classroom; 2. the IWB needs to be enhanced as a space for writing and manipulation by integrating textual resources with visual communication; 3. an accurate planning of resources presentation and interactive activities (using the IWB to do things that could not be done in other ways); 4. the need to use effective resources, balanced and capable of centering the didactic objective.

The presentation of Ligorio "La scrittura collaborativa online" (Online collaborative writing) focused on the use of online collaborative writing as a support to academic writing.

Following the premise that very often university students do not display appropriate academic writing skills because they are very seldom required to write, the author reported some common errors which indicate a lack of an academic style in writing, summarized into three types (Boscolo, Cisotto, 1999): 1. a frequent use of *Knowledge Telling* (instead of using writing as a process of knowledge elaboration) and the lack of *Knowledge Transforming*; 2. lack of clearness in exposing concepts; 3. poor knowledge about different writing registers. Nevertheless, in the author's opinion, these errors can be reorganized through collaborative learning, assuming the perspective that collaborative practices (*e.g.*, the Community of Learners, the Knowledge Building Community, the Jigsaw, the Reciprocal Teaching, the Progressive Inquiry etc.) and the socialized error correction (Boscolo, Ascorti, 2004) can foster the improvement of writing abilities, giving students the opportunity to develop consciousness, analyticity and criticality about what they are creating, also making them capable of expressing their point of view and taking the reader into account.

Following these premises, Ligorio's research presentation referred to a specific model – created and implemented in a blended university course in Bari – called *Modello della Partecipazione Costruttiva e Collaborativa* (Constructive and Collaborative Participation Model), whose aim was to explore the effects of taking part to a blended activity on students' academic writing skills. The model was inspired by some collaborative and constructive learning models (above mentioned) and was applied to a university blended course about the E-learning. The course was divided into four modules and an adapted Jigsaw structure was

applied. Each module included an activity and the students were divided into five groups. The platform hosting the online activity was *Synergeia*[11] and it was chosen because it is inspired to the socio-constructivist principles the model is based on. The collaborative online writing activity, as Ligorio explained, was structured into ten steps: 1. the students were divided into groups; 2. each group was assigned some readings. The students of the same group read different materials but every group read the same material; 3. a research question was defined as a guide for individual reading and the following group discussion; 4. every participant was asked to write a 300-words critical review using a scheme provided by the teacher with specific criteria (grammar, formal academic features, linguistic style, critical skills etc.); 5. the students of different groups which were reading the same material compared each other through the so called "alter-ego discussion"; 6. every student was required to post his own review about the read material; 7. the reviews were read by every member of the group, following the *Jigsaw* technique; 8. the teacher, randomly, had to read, comment and post two reviews for each group. At the end of the course every student received at least two corrected reviews; 9. all the students were required to read and comment the reviews commented by the teacher; 10. the group discussion, led by the research question, was based on the report of everyone's review and the reciprocal reading of every review. An evaluation grid was set up in order to analyze the collected reviews, exploring three macro-areas: grammar and structural errors, academic style and content. With regard to the specific effects of the teacher's corrections and comments, the students were divided into three groups: students whose review got a feedback by the teacher; students who get a vicarious feedback (alter-ego); students who had no feedback.

The author gave an overview of the results of the research, reporting a difference, from the first to the last module of the course, in terms of a decrease of grammar and stylistic errors, an improvement of academic features and no significant improvements in critical skills. She also stressed that the teacher's feedback mostly influenced the students receiving vicarious feedback, which allows to deduce that this kind of correction works like a "mirror" in the process of revision of a student's own review. The conclusions of Ligorio focused on the fact that a public feedback of the teacher and an online educational environment can promote an improvement of writing skills for those who receive a correction and on those who receive a vicarious one. A tool like a review changes its role from an individual product to a shared one and students' motivation increases as well as the usefulness of the writing process.

The four contributions inspired a final plenary discussion centered around some key-questions: how to get teachers familiar to the implementation of technology in their activities in classroom; how to challenge and motivate them to discover the potentials coming from the use of technologic tools in a process of knowledge building with students; how to rethink the concept of learning as

a social process in which technology can play a mediation role. There was agreement about the fact that 2.0 technology is being part of our historical period and it is necessary that teachers deal with the reach of these innovations and look at their school and their classrooms as a community of research in which learning is considered a social activity and a process of knowledge construction.

Notes

[1] Cfr. www.associazionecontext.org.
[2] Further information about the cycle of seminars in 2011 available on Associazione Context website.
[3] University of Valle D'Aosta.
[4] University of Rome "Sapienza".
[5] Cfr. http://elearning.uniroma1.it.
[6] "F. Petrarca" Secondary School of Arezzo; SISUS Scientific Committee; GREMS University of Siena.
[7] University of Bari "Aldo Moro".
[8] *Knowledge Forum* is an online learning environment created by a research group in Toronto coordinated by Carl Bereiter and Marlene Scardamalia (1999) on the basis of the principles of the *KBC* model. For further information: www.knowledgeforum.com.
[9] For further information: www.educross.it.
[10] The term *Blended learning* identifies an organizational model which combines face-to-face classroom activities with computer-mediated ones.
[11] Cfr. http://bscl.fit.fraunhofer.de.

References

Beeland W. D. (2002), *Student engagement, visual learning and technology: can interactive whiteboards help?* Annual conference of the Association of information technology for teaching education. Trinity College, Dublin.

Bereiter C. (2002), *Education and Mind in the Knowledge Age*. LEA, Mahwah (NJ).

Boscolo P., Ascorti K. (2004), Effects of collaborative revision on children's ability to write understandable narrative texts. In L. Allal, L. Chanqouy, P. Largy (eds.), *Revision: Cognitive and instructional processes*, 13. Kluwer, Boston (MA), pp. 157-70.

Boscolo P., Cisotto L. (1999), On reading-writing relationships: How young writers construe the reader's need for inferences. In S. R. Goldman, A. C. Graesser, P. Van den Broek (eds.), *Narrative comprehension, causality, and coherence: Essays in honor of Tom Trabasso*. Erlbaum, Mahwah (NJ)-London, pp. 161-78.

Brown A. L., Campione J. C. (1994), Guided discovery in a community of learners. In K. Mc Gilly (ed.), *Classroom lessons: Integrating cognitive theory and classroom practice*. The MIT Press, Cambridge, pp. 229-72.

Cacciamani S., Giannandrea L. (2004), *La classe come comunità di apprendimento*. Carocci, Roma.

Lave J., Wenger E. (1991), *Situated learning. Legitimate peripheral participation*. Cambridge University Press, Cambridge.

Mason L. (2006), *Psicologia dell'apprendimento e dell'istruzione*. il Mulino, Bologna.

Prensky M. (2001), Digital Natives, Digital Immigrants. *On the Horizon*, 9, 5, pp. 1-6.

Scardamalia M. (2003), *Going beyond best practice: Knowledge building principles and indicators*. Paper presented at Summer Institute (August 2003) University of Toronto, Toronto.

Scardamalia M., Bereiter C. (1999), Schools as knowledge building organizations. In D. Keating, C. Hertzman (eds.), *Today's children, tomorrow's society: The developmental health and wealth of nations*. Guilford Press, New York, pp. 274-89.
Scardamalia M., Bereiter C., Lamon M. (1994), The CSILE project: Trying to bring the classroom into World 3. In K. McGilley (eds.), *Classroom lessons: Integrating cognitive theory and classroom practice*. The MIT Press, Cambridge (MA), pp. 201-28.
Smith F., Hardman F., Higgins S. (2006), The impact of interactive whiteboards on teacher-pupil interaction in the National Literacy and Numeracy Strategies. *British Educational Research Journal*, 32, 3, pp. 443-57.
Smith H. J., Higgins S., Wall K., Miller J. (2005), Interactive Whiteboards: boon or bandwagon? A critical review of the literature. *Journal of Computer Assisted Learning*, 21, pp. 91-101.
Warren C. (2003), Interactive whiteboards: an approach to an effective methodology. *Computer Education*, 103, pp. 11-2.
Wenger E. (1998), *Communities of Practice: Learning, Meaning, and Identity*. Cambridge University Press, Cambridge.

Riassunto

"Scuola e tecnologia 2.0: sintonizzarsi sulle competenze digitali degli studenti" è il sesto di un ciclo di incontri che hanno avuto luogo nel 2011 e il cui tema principale è stato "La scuola come risorsa: riprendiamo a progettare il futuro". Il seminario si è tenuto il 19 gennaio 2012 presso il Centro Congressi Frentani di Roma ed è nato dalla seguente premessa: la tecnologia 2.0 è diventata pervasiva nei diversi contesti della cultura occidentale (nel mondo del lavoro, nella vita quotidiana ecc.). In virtù di ciò, la scuola deve svolgere una funzione educativa incoraggiando lo sviluppo delle competenze digitali funzionali anche all'apprendimento, alla convivenza sociale e alla cittadinanza attiva. Gli studenti possiedono in parte competenze sull'uso di tecnologie 2.0 e questo spiega il motivo per cui esse debbano essere valorizzate ed inserite nel curricolo educativo della scuola. Per educare allo sviluppo di competenze digitali per l'uso delle tecnologie 2.0 occorrono modelli psicopedagogici efficaci. In base a tale premessa, lo scopo del seminario è stato di condividere strategie ed esperienze funzionali a declinare in modo formativo le competenze tecnologiche dei cosiddetti "nativi digitali". Il seminario ha visto la partecipazione di docenti, ricercatori, esperti esterni e studenti ed è stato caratterizzato dagli interventi di quattro autori (Stefano Cacciamani, Donatella Cesareni, Antonella Fatai e M. Beatrice Ligorio), i cui contributi hanno avuto l'intento comune di condividere l'esperienza derivante dall'implementazione della tecnologia a diversi livelli di istruzione (dalla scuola all'università).
Parole chiave: *competenze digitali*, *apprendimento collaborativo*, *comunità di ricerca*, *Lavagna Interattiva Multimediale*, *scrittura collaborativa online*.

Il presente report rappresenta una raccolta fedele degli interventi e dei materiali di ricerca presentati dai quattro relatori al seminario ed è stato realizzato nel febbraio 2012. Le richieste di estratti vanno indirizzate a Mariaconcetta Miasi (m.miasi@yahoo.it). Le richieste di approfondimenti e/o chiarimenti in merito agli interventi riportati, e all'eventuale bibliografia aggiornata, vanno indirizzate a Stefano Cacciamani (s.cacciamani@univda.it), Donatella Cesareni (donatella.cesareni@uniroma1.it), Antonella Fatai (contifatai@alice.it) e M. Beatrice Ligorio (bealigorio@hotmail.com).