



107272015

Rivista interdisciplinare
di tecnologia
cultura e formazione

Special issue
Innovation and digital
technologies: between continuity
and change

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Registrazione del Tribunale di Bari

n. 29 del 18/7/2005

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ISSN 2240-2950

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Editorial

Stefano Cacciamani*, Gisella Paoletti**

Editorial *Innovation and digital technologies: between continuity and change*

As announced, the theme of this special issue is the same that inspired the V National Congress of CKBG, which was held in Trieste 9-12 September 2015, with the participation of many dear friends and colleagues. The special issue is inspired by the questions we had instead launching the conference, and from the ideas gathered during the four days we spent together. Our starting point is the decade-long reflection on the scope of innovative technologies:

1. What are the innovative potential of existing digital technologies for school? 2. Innovation is possible as long as radical changes in the uses and contexts or, conversely, it is essential to capitalize practices and existing way of use building on them innovation? To which one might add: 3. And how many is valued at school the potential role of collaborative technologies? These are the keys to understanding with which we heard presentations at the conference and read the articles

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published in this issue. The report – not exhaustive – we propose exhibits and summarizes what we have heard.

Concerning the first question, from the Conference emerged at least four directions of innovative potential of current digital technologies. The first, typical of Web 2.0 tools, is the strong support for the change of position of students and teachers: by individual users of information to creators, in a context of collaborative community, of new knowledge, be it in conceptual artifacts (as proposed by the Knowledge Building model of Bereiter and Scardamalia) or materials (such as the Trialogical Approach, presented in the symposium proposed by Cesareni and Sansone).

The second direction of innovation is of a socio-cultural perspective, with reference to the organizational model of the “Smart City”, present in different contributions: the school uses digital technology to create contexts “smart” that facilitate the use of services, collaborative exchanges, participation in social life, the realization of production processes that respect the environment. Technologies sustain therefore the need of rethinking the mode of operation of the school that integrates her work with the city in the direction of a model of sustainable development and social innovation. The contribution of Patrizia Marti, in this issue, explores also the direction of social and cultural change enabled by technology.

A third direction of innovation has to do with the portability of technology tools: the use of tablets and smartphones to school, also supported by the approach BYOD (Bring Your Own Device), mentioned in the school reform, it is introducing the possibility of a fluid teaching and learning approach, distributed and spread in different environments of the classroom, with the questioning of the approach based on technology “heavy” and of low mobility such as Multimedia Interactive Blackboards.

Finally, a fourth direction of innovation concerns the eruption of emotions in experiences mediated by technology. The contribution of Patrizia Marti at the Conference has outlined some possibilities illuminating proposing cases of “technologies that excite” in different contexts: the realization of products able to “emotionally capture” the consumer, to the development of a robot with the appearance of a

baby seal can activate a circuit of positive emotional communication between caregivers and people with Alzheimer's.

Further relevant ideas emerged even with respect to the other questions.

First idea: somethings never seem to change: the lack of funding, for example, which makes it unsure the possibility to develop and to continue a research and the started activities. As Beraldo said, in Brazil they worked with overcrowded schools, with many shifts of students trying to use Moodle on tablets, but often there was no Internet. Another example: Assessment methods did not change enough: what should the smart teacher ask to smart pupils? Competences or knowledge?

Second, technology seems to disappear, it is no more visible. Barbato studied the teachers' use of Moodle and found that users do not even remember to have used it (perhaps they not consider it a technology). Asquini proposes a de-branding mechanism: even their students do not realize to use Moodle and the other tools.

Grion, Petrucco (following pages) stressed a different viewpoint: teachers in their research use computers to *search* for information (and Di Stasio proposes the usefulness of a content curator), but do not seem to give a value to the computer as a tool for writing to a different audience, and the use of social media does not seem to have an academic function.

Maybe the problem lies partly in how teachers use and conceptualize the computer and Internet? Or, borrowing the idea from an article by Di Mele and colleagues and transferring it from students to teachers, should the sense of self-efficacy of teachers in the use of these technologies be supported through appropriate training processes?

Third idea: The computer does not loose its appeal as a tool for writing, communicating, sharing. Kumpulainen told us of an experience of groups of kids producing a script with a laptop, which refers to many experiences of collective writing. This theme was also taken up in a symposium proposed by Piero Boscolo. Barzanò notes that the kids would love to use computers to express themselves, to talk to others (although teachers tend to see writing almost only an assessment

tool). A kind of writing which has new, multi-modal features, which in this special issue are also explored by Schlemmer. Or even those of a forum, as proposed during the conference by Knowledge Building International representatives to share the suggestions explored at the Congress.

A key to the interpretation and a path to change is given by Kristina Kumpulainen, who participated by videoconference. Kumpulainen commented the differences in Finland schools. She spoke about the need of “risky” consequences which have innovatively interesting output. Maybe is this, the courage to propose risky discontinuity, the key to the success of the technology?

We therefore invite the readers to approach this special issue on the basis of our questions, and of course those of his/her personal interest, to get from the articles in this issue the innovative potential of today digital technologies and to identify conditions to be activated because this potential may turn into real opportunities to support compelling and qualified school experience.

Editoriale *Innovazione e tecnologie digitali: tra continuità e cambiamento (sintesi)*

Durante il V Congresso Nazionale del CKBG, che si è svolto recentemente a Trieste e che si è intrecciato con le giornate del Knowledge Building Summer Institute, molti amici e colleghi hanno formulato una risposta alle domande che ci eravamo posti come temi dell’incontro: quale portata innovatrice hanno le tecnologie digitali per la scuola? L’innovazione è possibile solo a patto di radicali cambiamenti? Cerchiamo qui di riassumere alcune delle risposte.

Per prima cosa, è stato sottolineato il forte cambiamento di posizione degli studenti e dei docenti che fanno uso degli strumenti del Web 2.0: da fruitori individuali di informazioni a creatori, in un contesto di comunità collaborativa, di nuova conoscenza, in artefatti concettuali (Bereiter e Scardamalia) o materiali (Cesareni e Sansone).

Una seconda direzione di innovazione, esplorata tra gli altri da Marti (in questo numero), è di natura socio-culturale: la scuola utilizza la tecnologia digitale per creare contesti “smart” che facilitano

la fruizione di servizi, gli scambi collaborativi, la partecipazione alla vita sociale, la realizzazione di processi di produzione che rispettano l'ambiente, fino ad arrivare alle "tecnologie che emozionano".

Una terza direzione di innovazione ha a che fare con la portabilità degli strumenti tecnologici: l'utilizzo di tablet e smartphone a scuola, sostenuto anche dall'approccio BYOD (Bring Your Own Device), citato anche nella riforma della scuola, sta introducendo la possibilità di attività di insegnamento e apprendimento fluide, distribuite e dislocate in differenti ambienti.

E tuttavia vi sono anche resistenze al cambiamento, legate alla scarsità di finanziamenti, per esempio, che rende insicura la prosecuzione di una ricerca e la conduzione delle attività. Anche metodi e strumenti dell'assessment risentono di un certo immobilismo: non si riconosce un valore agli aspetti social delle tecnologie, solo a quelli accademici (Grion, Petrucco, nelle prossime pagine); mentre i ragazzi a scuola vorrebbero usare la scrittura per esprimersi, i docenti tendono a vedere la scrittura quasi solo come uno strumento di valutazione (Barzanò).

Però il computer mantiene il suo fascino come strumento per la scrittura, la comunicazione, la condivisione (Kumpulainen, Boscolo). Una scrittura che ha caratteristiche nuove, multimodali, che nel presente special issue vengono esplorate anche da Schlemmer, o sociali, come quelle del forum, proposto durante il convegno da Knowledge Building International.

Non possiamo che concludere con altre domande: il successo nell'uso delle tecnologie digitali nel contesto scolastico sta nel coraggio e nella possibilità di assumere da parte degli insegnanti il rischio della discontinuità nelle loro pratiche scolastiche? Occorre sostenere attraverso opportuni processi formativi il senso di autoefficacia degli insegnanti nell'utilizzo di tali tecnologie?

Editorial *Innovation et technologies numériques: entre continuité et changement (synthèse)*

Le V^{ème} Congrès national du CKBG, en lien avec "the Institut of Knowledge Innovation and Technology", a eu lieu récemment à

Trieste et a rassemblé de nombreux amis et collègues. Ce numéro spécial s'inspire alors des questions abordées durant les quatre jours de la conférence et des idées qui en ont émergées: quel est le potentiel de l'innovation des technologies numériques existantes pour le milieu scolaire? L'innovation est-elle seulement possible si des changements radicaux sont opérés? Nous nous proposons ainsi de rapporter certaines des réponses émises durant le Congrès.

Tout d'abord, il est à noter le fort changement de position des étudiants et des enseignants qui utilisent des outils Web 2.0: il ne sont plus seulement des utilisateurs individuels de l'information mais des créateurs de nouvelles connaissances, dans un contexte de collaboration communautaire, et ce, que ce soit dans des objets conceptuels (Bereiter et Scardamalia) ou des matériaux (dans le sens de Cesareni et Sansone).

Une deuxième direction de l'innovation, explorée entre autres par Marti (dans ce numéro), implique une perspective socio-culturelle: l'école utilise la technologie numérique pour créer des contextes "intelligents" qui facilitent l'utilisation des services, les échanges de collaboration, la participation dans la vie sociale, la réalisation de processus de production respectueux de l'environnement, et ce, dans le but d'arriver à des "technologies qui excitent" (dixit Marti).

Une troisième direction est liée à la portabilité des outils technologiques: l'utilisation des tablettes et des smartphones à l'école, soutenue par l'approche BYOD (Bring Your Own Device) et mentionnée dans la réforme de l'école, engendre la possibilité d'un enseignement et d'un apprentissage fluide et distribué parmi les élèves.

Et pourtant, il existe des résistances face aux changements. Ainsi, le manque de financements, par exemple, rend incertain la possibilité de développer et de poursuivre une recherche et les activités engagées. De plus, les méthodes et les outils d'évaluation sont affectés par un certain conservatisme: on ne reconnaît pas une valeur aux aspects sociaux de la technologie, mais seulement aux aspects académiques (Grion, Petrucco, dans les pages suivantes). Enfin, les enfants, à l'école, semblent apprécier l'activité d'écriture impliquant l'utilisation de l'ordinateur pour s'exprimer, alors que les enseignants ont tendance à percevoir l'écriture presque uniquement comme un outil d'évaluation (Barzano).

Enfin, il est important que l'ordinateur apparaisse comme un outil à la fois pour: (1) l'activité d'écriture, (2) la communication et (3) le partage (Kumpulaien, Boscolo). Un nouveau type d'écriture apparaît et implique de nouveaux aspects: multimodaux, comme ceux qui sont explorés par l'article de Schlemmer, ou sociaux, comme ceux du forum, tel qu'il l'a été proposé lors de la conférence Knowledge Building International. Nous ne pouvons conclure qu'avec des questions: le succès de la technologie en milieu scolaire réside-t-il dans le courage et la possibilité des enseignants à prendre le risque de la discontinuité dans leur pratiques? Devons-nous soutenir, par des processus de formation appropriés, le sens de l'autoefficacité des enseignants par rapport à la technologie?