

PREMIER REFERENCE SOURCE

Fostering 21st Century Digital Literacy and Technical Competency



Antonio Cartelli

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This article highlights the importance of the concepts of media literacy, and digital and informational literacy to understand the multimodal meaning of multiliteracies and their interfaces. An analogy with Babel is used to understand the different ways in which this concept articulates the linguistic, visual, audio, spatial, and gestural dimensions in digital culture. In this framework, the question of convergence is highlighted in learning experiences undertaken in formal and informal contexts. To qualify the meaning of this learning for the subject, the article mentions the concept of personal literacy to locate the importance of subjectivity in the interactions that the multiliteracies offer. Finally, in an exercise of representation of the components of the multiliteracies, the article presents a diagram that highlights the importance of mediation and the forms of appropriation that express concepts and experiences in search of a transformative pedagogical practice, as an opportunity to understand the multiliteracies as a condition of dialog, expression and participation in the culture.

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Longitudinal research projects into social practices are both subject to and capture changes in society, meaning that research is conducted in a fluid context and that new research questions appear during the project's life cycle. In the present study emerging new performances and uses of ICT are examined and the relation between network society competences, learners' informal learning strategies and ICT in formalized school settings over time is studied. The authors find that aspects of ICT like multimodality, intuitive interaction design and instant feedback invites an informal bricoleur approach. When integrated into certain designs for teaching and learning, this allows for Formalized Informal Learning and support is found for network society competences building.

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Tony Jewels, Zayed University, UAE

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For a number of years, there has been a concerted effort by the United Arab Emirates to take a prominent role in introducing e-business initiatives throughout the Gulf region, and this effort has translated into widespread access of internet technology for its own citizens. The country, in setting out to become a hub for foreign and domestic companies, realized that to achieve these goals it must provide appropriate e-business frameworks and infrastructures, which it has successfully done. Although, while not the only means of acquiring digital literacy, regular exposure to the internet does contribute to gaining these necessary 21st century skills. It might be expected that with such widespread access to the internet the population would contribute to becoming digitally competent. Using an ethnographic case study methodology, this paper investigates issues contributing to what might be a new form of digital divide; cultural issues which limit the acquisition of such digital skills.

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The topic of the individual learning conditions creation can be analysed from the technological as well as pedagogical side. In both cases there is the same fundamental point: how to create valuable and as much as possible natural learning environment? The experience in the application of technologies for personalisation, analysed in scientific literature, reveals newer possibilities for the individual activities support. This encourages taking a different route in analysing individual learning – to interdisciplinary combine the content of close concepts. The paper deals with basic concepts of interdisciplinary content analysis – informatics and information technology impact to an individual learning in primary school.

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In this paper the behaviors and tendencies in the use of digital technologies by university students are analyzed. After a short discussion of former studies and the presentation of the model for digital literacy structure and assessment in students attending compulsory school, the investigation carried out by the authors is described and the results obtained from the analysis of the university students' answers is reported. The survey was submitted to 331 students in the Faculty of Humanities at the University of Cassino, Italy, and the students' answers show a contradictory reality: on one side, digital technologies are mainly used to communicate in social networks or to play music and movies, on another side it is evident the students' interest for the most recent aspects of the application of digital technology and for the improvement in the quality of their use.

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Starting from the key competencies for a knowledge society, this paper examines the information and communication technology (ICT) competency needed by teachers for effective teaching in the 21st-century. The paper analyzes the existing pre-service education programmes for teachers' ICT competency in Lithuanian universities and colleges, self-evaluation of future teachers of their technological and pedagogical ICT competency, and comparison of these results with the course requirements for the teachers' educational ICT literacy, based on the existing Lithuanian requirements for teachers' pedagogical ICT literacy programmes. The paper is based on the data of the research study "Teachers' Training on ICT Application in Education" developed by the Institute of Mathematics and Informatics in 2009. Conclusions and recommendations of the study have been proposed to implement deeper content-based modules for pedagogical ICT competency and skills in all-level pre-service teacher education as well as in-service training courses.

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This article describes the new requirements of the European Higher Education Area (EHEA) - international and cross-cultural, Information and Communication Technologies (ICTs) that are important in all fields of university studies and take on a central role for learning and teaching. The literature review showed that, despite the considerable attention focused on the technological know-how of university teaching, few studies have examined the characteristics of these actors. The purpose is to focus more on teachers, clearly defining the technological skills necessary to develop the new European System of Higher Education in order to facilitate the development of skills, general learning, disciplinary, and professional digital education. This paper analyzes why this adaptation is necessary, the difficulties encountered, the objectives, and the response of teachers to these changes. On the other hand, university education acts on three fronts: the integration and use of new educational technologies in universities, the European convergence and application of ICT, the innovation and education needed to bridge the gap between universities, and teachers facing reality, both socially and professionally. This study contributes to the debate on the interactions between academic literacy, technological skills, and employment prospects for university teachers.

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The needs of adult learners are different from those of traditional undergraduate students, and programs must be designed to meet this need. In particular, digital and technology literacy needs, including general computing skills, computerized communications, online and distance learning, and Web 2.0 tools make navigating coursework an additional challenge. In this paper, the authors examine the technology and digital literacy needs and backgrounds of adult learner students and discuss research on the interaction between technology and adult learner education. Using the features of intensive weekend classroom sessions, on-line distance learning, and specialized teaching methods, an improved learning environment

tailored to unique needs and career goals can be offered to business undergraduate adults. An important component is the development of technology and digital literacy skills to “fill the gaps” of students who may have extensive business or working experience, but are less than proficient in the use of technology. More depth and analysis is given to the following areas: digital and technology skills and knowledge improvement, pedagogical features, the use of intensive weekend and evening sessions, and the role of distance learning to supplement the classroom sessions.

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The M.A.T.R.I.X (Modalities of Telematic Learning and Inter-university Results that can be Extrapolated to Blended Learning)¹ project identified and described the diverse teaching methods and practices applied in a representative sample of virtual and blended learning degree courses taught at different Spanish Universities using the G92 Shared Virtual Campus. The purpose was to extrapolate the experiences considered as “good practice” in the new blended learning contexts and methodologies proposed by the EHEA, using as indicators the quality of the learning design as assessed by experts, the satisfaction level of the students taking the courses, their effective contribution to attaining specific and generic competence in different subjects.

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Dimitrios Roussinos, University of Peloponnese, Greece

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Wikis are currently gaining in popularity in schools and higher education institutions and they are widely promoted as collaborative tools supporting students’ active learning. This paper reports on the investigation of university students’ beliefs and perceptions of a wiki authoring activity, designed to support blended and collaborative learning. The study was administered in the context of an authentic coursework project activity in a first semester university course on Information and Communication Technologies (ICT), attended by 47 first year students. Research findings indicated that the students in the sample were generally positive about the collaborative experience offered through the wiki and the consequent learning outcomes. Students’ perceptions of the functionality and usability of the wiki environment were also positive. They considered the wiki as an effective and easy to use technology. In overall, they evaluated positively the wiki assignment, as well as the technical and learning support they received on-line, through the wiki pages, and by their instructors during the class sessions.

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Antonella Nuzzaci, Université de la Vallée d'Aoste, Italy

This study examines the effects of an activity of reflection on a group of students enrolled in the Master for Intercultural Education and European dimension of distance education, who participated in the construction of the model for a "reflection participant" and a self-evaluation tool to be used for training teachers. The activity is part of the research carried out within the Leonardo da Vinci "REFLECT" - "reflective practice for training the trainers" - Reflective Practice and VET (Vocational Education and Training), aimed at the creation of a specific methodology for the implementation of reflective practices in VET contexts, so that new processes of updating and re-professionalization required by the challenges of today's society can be started. It envisaged the creation of a testing laboratory, organized within the Faculty of Education at the University of Valle d'Aosta, which brings together teaching and research functions, contemplating an experiment involving the direct training of educators and teachers and demonstrating how to make a significant change in the actors who take part in the process. The study results show that it is possible to develop, enhance and strengthen skills through reflective mode online. The study indicates in post-treatment that the impact of such differences is based on the contextual features of the training.

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This paper reports and discusses the result of a survey focused on the perceptions and expectations on TEE applications, conducted among 500 Italian educators (university, high/middle/elementary schools and professionals) involved in on-line or blended learning practices. The expectations are quite basic ones, although may depend on the educational level: support to content sharing and production, communication, assessment and team working are at the top of rank; much less relevant appear to be items like: support to socialization, process design and personalization. Very similar results have been obtained also from a survey among schools' teachers, novices for TEE, attending a Master in "e-learning: methods, techniques and applications". The survey was conducted after the conclusion of the first part of the master carried on according to a very traditional distance learning process: content download, self-evaluation tests, tutor assistance upon request. However, after the participation to the second part of the Master, organized as a collaborative, design inspired P3BL (problem, project and process based learning) experience, their opinions on TEE changed in a considerable manner. This indicates how necessary a dissemination action on a large scale among educators with regard to both TEE potentialities and design literacy would be.

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Benefits and Risks of Social Networking Sites: Should they also be Used to Harness Communication in a College or University Setting? 188

Angelina I. T. Kiser, University of the Incarnate Word, USA

One of the challenges facing university and college professors is the use of effective and efficient communication with their students. One solution could be the use of social networking sites to engage students and the U.S. 2010 Digital Year in Review (2011), social networking continues to grow as one of the web's top activities with 9 out of every 10 U.S. Internet users accessing break down communication barriers, according to a social networking site every month. The study includes an in-depth review of the uses, benefits and risks of social networking sites as well as how they might be utilized in a college or university setting. The researcher in this study surveyed university business students at a private, four-year, Hispanic-serving institution in Texas about their use of social networking sites and how professors might integrate these sites into the curriculum.

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Using Precision Teaching Method to Improve Foreign Language and Cognitive Skills in University Students 201

Francesca Cuzzocrea, University of Messina, Italy

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Learning a foreign language takes time and effort. In the last few years, too much emphasis has been placed on oral communication skills and English teachers make their students speak English without paying enough attention to grammatical accuracy. As a result, while students' ability in terms of fluency has improved, they often cannot communicate appropriately in English due to a lack of grammatical knowledge. The aim of the study was to explore the potential of Precision Teaching software developed for the improvement of English grammar rules. Two groups were compared, one having used the software and the other following a traditional textbook-based approach. The students who used the software showed significantly higher learning scores than students who did not. In addition, after using the software students show increased scores in some cognitive abilities that are related to foreign language learning.

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Use of the Internet by Medical Practitioners in Private Hospitals in Warri, Delta State, Nigeria 213

Esharenana E. Adomi, Delta State University, Nigeria

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Jonathan C. Ogugua, Federal University of Technology, Owerri, Nigeria

This study explores the use of the Internet by medical practitioners in private hospitals in Warri Delta State, Nigeria. Descriptive survey design was adopted and questionnaire was the instrument used to collect data. The total population and sample for the study were 137 medical practitioners from 30 private hospitals in Warri. Findings revealed that most medical practitioners used the Internet on a regular basis; a majority of the medical practitioners started using the Internet between 1 – 5 years ago; most of the medical practitioners spend 2 – 5 hours using the Internet per visit; a majority of medical practitioners used the Internet without assistance. Medline, journals and PubMed were the Internet resources used

by most of the medical practitioners. Internet use enables the respondents to improve patient care, keep up-to-date; high cost of Internet access and lack of access to the Internet were some of the problems facing most of medical practitioners. The study recommends that hospital management should provide their medical practitioners with Internet facilities to enable them access to the most recent and accurate information for effective service delivery. The findings will help health care authorities especially in developing countries to improve on Internet access facilities to medical practitioners.

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Literacy and Space Technology In Nigeria 222

Christopher Babatunde Ogunyemi, Joseph Ayo Babalola University, Nigeria

This paper examines literacy as it affects Space Technology in Nigeria. The place of digital technology enables a proper understanding of literacy in Nigeria. The paper is divided into four parts. The first section redefines literacy in order to understand the possibilities of meanings based on the perceptions of James (1984), Onukaogu (2008), Arua (2009) and Ajayi (2009) that conceptualize the complex nature of literacy and its indispensability. The second part visualizes the role played by literacy in educating technological advancement in Nigeria, bearing in mind that in 1999, the Federal Government of Nigeria approved the Nigerian Space Policy and the implementation of the space program. The third section underscores the socio-economic relevance of literacy in enhancing global space technology for Nigeria while the fourth section relates Ajayi's (2009) projection in a meta-critical manner, so that Nigeria can become a world power. The theoretical framework for this paper is the "Transformational Theory". The theory opines that "learning occurs as a result of transformation of participation in culturally valued activities" such as space technology. The paper emphasizes practical findings to stimulate excellence and literacy relevance in science and technology.

Chapter 17

Hybrid Wireless Networks for E-Learning and Digital Literacy: Testing and Evaluation 233

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Today, satellite communication networks are being integrated into the infrastructure of modern Terrestrial communication networks and becoming popular for the delivery of educational content and data, as well as education-centric services, including information, tele-conferencing, entertainment, or "edutainment" services. With fresh demand for new services and applications, it is becoming essential that wireless network architecture seamlessly interoperate with new and existing technologies, protocols and standards. This paper presents recent work on the use of hybrid wireless network infrastructures for delivering tele-education and e-learning applications to remote communities by combining a variety of satellite, terrestrial and wireless technologies, and provides the results from live scenarios carried out employing various methods of interoperability testing. The analysis of the results examines a number of different issues such as delay, jitter, packet loss, latency, throughput measurement, and bandwidth. By combining satellite and terrestrial (wireless) technologies, full coverage and high capacity can be achieved for true broadband services for delivering educational content. The interoperability among such diverse networks imposes a number of challenges regarding service provision and management.

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