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ΑΘΗΝΩΝ

## Making the Transition to Ubiquitous Learning

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### Symposium Introduction

The four papers in this symposium address the transformative effects of new media on learning as they provide the underpinning for a move to ubiquitous learning. The authors pay particular attention to what new technologies afford for learning, and how their widespread dissemination and use affects media literacy and relationships in who learns what from whom and where. Key among the affordances of the new media are transformations in the production process, with new media creating a need for multimodal literacy both in understanding and producing new texts. Significant changes also occur in the roles of reader and user, consumer and producer, learner and teacher. The reach of new media beyond classroom walls and beyond formal learning contexts challenge the boundaries of education, transforming learning from a managed activity to an ubiquitous – anywhere, anytime, with anyone – and continuous part of daily life. New ways in which meaning is created, stored, delivered and accessed are appearing daily, each influencing what it means to participate in learning.

[Cope and Kalantzis](#) identifying seven moves associated with new media that particularly drive change in learning practices. While the pedagogical thought or social agenda that is not new to the era of ubiquitous computing, the authors argue there is now no practical reason not to make each of these moves. The authors tie these moves to learning as schools transform into knowledge-producing communities; differences across learners become more present in the learning groups; expression becomes both multimodal and self-chosen; and pedagogy reaps the benefits of using new modes of communication and practice.

[Bruce](#) questions whether ubiquitous computing is insufficient for ubiquitous learning. He stresses the need for a vision of ubiquitous learning, not just technology implementation. In his vision, ubiquitous learning extends far beyond the confines of the classroom, to the home, the workplace, the playground, the library, museum, and nature center, and in our daily interactions with others. As new media penetrate nearly every aspect of daily life, so does learning and thus daily life becomes the arena for new pedagogies and new learning practices.

[Duffy and Clark](#) describe of a new undertaking to produce a grid-enabled collaborative environment for the production of comics (also known as sequential art). The increasingly popular medium of comics is on its way to outgrowing its characterization as only relevant to the restricted world of superheroes. It is poised to be taken up in education circles for increasing reading literacy, presenting principles in combinations of image and text, and for inclusion in education to support student production. Their work introduces us to an up and coming new means of meaning, and of participating in ubiquitous learning.

[Haythornthwaite](#) asks us to consider the limitations of ubiquitous information. She discusses the unanticipated consequences and hidden work associated with abandoning information intermediaries in the rush to make all information equal online, and explores the changing relationships in who learns from whom. As our learning increasingly depends on online sources and the hidden work of retrieval algorithms, Haythornthwaite argues that this increases the work of the learner, and raises the need for not only critical media literacy, but also critical retrieval and retrieval technology literacy.

[Introduction - pdf](#)

## Ubiquitous Learning: An Agenda for Educational Transformation

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### Abstract

Ubiquitous learning is a new educational paradigm made possible in part by the affordances of digital media. This paper sets out to explore the dimensions of this proposition.

We can use new technologies to do learn old things in old ways. We can set up the ubiquitous computing devices in our contemporary world to do old-fashioned didactic teaching: the teacher or publisher puts content into a learning management system; the learner works through the content step by step; the learner does a test at the end and gets a mark which says they have passed or failed. We can use computers to recreate traditional, transmission pedagogies which anticipate a mimetic relationship to knowledge—absorb the theories, the practice formulae, the facts, the greats, the canon, the socio-moral truths that others have deemed will be good for you. There are some differences, to be sure—the image of the solar system in the old science textbook stays still but the planets move around the sun in the digital ‘learning object’—but the learner’s relationship to knowledge and the processes of pedagogy have not changed in any significant way (Kalantzis 2006; Kalantzis and Cope 2008).

The emergence of ubiquitous computing creates new conditions for all working as education professionals and learning as students. The key is not the logic or technical specifications of the machines. Rather it is the new ways in which meaning is created, stored, delivered and accessed. This, we believe, will change

the educational world in some fundamental ways—and also allow some older but good and disappointingly neglected educational ideas to work at last and work widely. The journey of ubiquitous learning is only just beginning. Along that journey, we need to develop breakthrough practices and technologies that allow us to reconceive and rebuild the content, procedures and human relationships of teaching and learning.

In this paper, we suggest seven moves which are characteristic of ubiquitous learning. Each explores and exploits the potentials of ubiquitous computing. None, however, is a pedagogical thought or social agenda that is new to the era of ubiquitous computing. The only difference today is that there is now no practical reason not to make each of these moves. The affordances are there, and if we can, perhaps we should. And when we do, we may discover that a new educational paradigm begins to emerge. And as new paradigms emerge, we might find they take a leading role on technological innovation.

[Full Paper - pdf.](#)

## **Ubiquitous learning, ubiquitous computing, and lived experience**

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### **Abstract**

Ubiquitous learning implies a vision of learning which is connected across all the stages on which we play out our lives. Learning occurs not just in classrooms, but in the home, the workplace, the playground, the library, museum, and nature center, and in our daily interactions with others. Moreover, learning becomes part of doing; we don't learn in order to live more fully, but rather learn as we live to the fullest. It is understandable to see ubiquitous computing necessary for this kind of ubiquitous learning and sufficient to make it possible. Education would certainly be easier to promote if we could simply identify some new technologies that would make ubiquitous learning occur. But the new technologies are neither necessary nor sufficient for this to happen. This chapter argues that it is our vision for ubiquitous learning that matters most, not simply the technical affordances. We need to define ubiquitous learning in an historically legitimate way, one which recognizes the possibilities afforded by the new technologies without reducing the argument to a technocentric position.

In 1946, Gwladys Spencer taught about audiovisual materials using a remarkable list. It included expected items such as "blackboards and bulletin boards," but many unexpected ones as well. She included television (in 1946!), showing that she had foresight about its eventual prominence as a communications medium. She also included tools for investigation, such as microscopes, and "models, objects, specimens." She clearly saw that AV materials were more than simply devices for transmitting information. But more striking still is the inclusion of "pantomimes, playlets, pageants, puppet shows, shadow plays" and "trips, journeys, tours, visits." The presence of these says that she saw all of the elements of her list as opportunities for enriching experiences, rather than simply as media for transmitting information.

Aside from the details of which tools she had available, the list shows that Spencer had a broad view of how libraries could support learning and, more important, a vision of what learning could be. Today, we are excited about multimedia in education. But what we often mean is simply that a computer display can show students moving pictures with sound. Interactivity is an important additional component. But our vision of what that multimedia really means for learning needs to go beyond the technical features of the display to consider what students can do and how they can extract meaning from their own experiences. Spencer saw that there were many tools and media that could enhance learning. She drew from traditional as well as emerging technologies to lay out a spectrum of possibilities for teaching and learning. Her list suggests an openness to diverse ways of learning and, moreover, a view of learners as active constructors of meaning. In so doing, she shows that ubiquitous learning depends more upon our pedagogy than on our technology.

Our vision of ubiquitous learning must maintain at its core a concept of those fundamental human skills. We feel that ubiquitous computing technologies help us solve problems, create/access knowledge, and build community. We feel that they do it in a way that links work, family and friends, learning, and life. But the very seamlessness of these technologies is seductive. Ellul's concept of the technological milieu is still a propos: "Every technique makes a fundamental appeal to the unconscious." (1964 p. 403). We need to ensure that employing new technologies enhances rather than diminishes our capacity to develop as whole human beings.

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## **OurComixGrid: Designing a Multimodal New Media Learning Environment**

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### **Abstract**

This paper describes the theoretical and technological underpinnings of a multimodal Web 2.0 collaborative semantic grid e-learning design environment called OurComixGrid (OCG). OCG combines new media creation and online social networking with the cyberinfrastructure of grid computing to facilitate multimodal literacy education. OCG is a multimodal Web 2.0 collaborative semantic grid e-learning environment predicated on creation and expression through sequential art, the medium of comics.

"Sequential art" or the word "comics" employed as a singular noun are categorical terms used somewhat interchangeably (see, e.g. Eisner, 1985, McCloud, 1993, McCloud, 2000), to describe the medium of expression found in comic books, comic strips, graphic novels, manga (Japanese comics), webcomics (online comics), and other formats. The medium is defined by the integration of text and image and the combination of multiple images in narrative sequence. Sequential art is therefore a multimodal medium, interweaving various forms of textual and visual information in a network of symbols that combine to create the meaning of the comic.

New media literacies are a necessity in our multimodal world, in which many types of information work

together to form meaning. Because comics is itself a multimodal form, it has been suggested that the medium can potentially be employed as a powerful teaching tool in multimodal literacy education (Norton, 2003, Gardner, 2006, Jacobs, 2007). Comics is also a popular art form, one in which readers, and particularly young readers, feel a co-ownership of meaning within the narrative. These two aspects of comics, its multimodality and the sense of co-ownership it affords readers, are synergistic with the online participatory cultures described by Jenkins, Clinton, Purushotma, Robinson, & Weigel (2006), in which young people are increasingly using internet technology to create and share media.

To capitalize on these synergies, OCG proposes an integration of the multimodal language of comics with grid computing in order to bring media creation to a virtual collaborative space for four overlapping communities: students, primary and secondary educators, art practitioners, and academic researchers. Software for art creation and organization, synchronous and asynchronous communication modules, and curriculum building applications for teachers are all features OCG will incorporate to bring these communities together, and encourage them to collaborate on innovative new media educational resources.

Grid computing and open source software provides the foundation for this collaboration. The large-scale data created by OCG users will be maintained via the integrated Rule-Oriented Data System (iRODS) (<http://irods.sdsc.edu>) which can describe management policies and provide the ability to track how the policies are applied and their execution results. OCG also makes use of CATPAC, a self-organizing neural network application that will track user and system created tags to facilitate qualitative and quantitative study of online collaborative practices within the social network. Thus OCG is a social network that can function simultaneously as a virtual art studio, an online classroom, and a laboratory in which to study the interactions of new media and education in the digital age.

[Full Paper - .pdf](#)

## Ubiquitous Transformations

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### Abstract

Internet-based trends that emphasize contribution, conversation, participation, and community exercise a significant impact on learning. They bring changes in where we find information, who we learn from, how learning progresses, and how we contribute to our learning and the learning of others. This paper addresses two aspects of participatory transformations arising from ubiquitous, networked learning: the invisible work of networked learners, and the changing nature of networked learning relationships.

While much attention is given to the unlimited possibilities for retrieving from online sources, little addresses the limits to such sources or the work that devolves to the learner for critical evaluation of retrieved information. Distributed practices entail a redistribution of processes and responsibilities to individuals who then perform the invisible work of networked learning. An autonomous learner is responsible for, and in many cases alone, in creating their own learning context and content as they search the internet for materials to support their needs. Such distribution of responsibilities increases the need for individuals to attain a variety of media literacy skills, including social skills in online participation and critical evaluation skills to use to evaluate retrieved content and retrieval techniques. Critical attention is also needed for the impact of ubiquitous contribution and retrieval afforded by the Internet, including whose information content predominates on the net, and whose is most likely to be retrieved by common retrieval techniques (e.g., through popularity rankings). This raises the need for not only critical media literacy, but also critical retrieval and retrieval technology literacy.

Distribution is also realigning of network roles and relations. Experts in the form of information professionals and teachers are bypassed in the expedience and convenience of retrieval and learning from the web. Peers and other learners become information sources and teachers. Emergent changes in relationships that affect educational settings include changes in authorial relationships with leaders, instructors and documentary sources, peer relationships with other learners (both contemporary and past), and relationships with local communities and networks. This paper explores these changes in roles and relations addressing questions such as: What is expertise in the age of participatory learning, and whose definition is it anyway? In an age of participatory culture, and participatory learning, what are the roles of learners and teachers? What are the practices required of each? How will the persistent record left by so much online participation be used? What is the worth of a publisher's or journal name in the age of wikipedia? What does local mean in the age of online learning? And, What is the role of local in online learning?

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