



VOLUME 8 2013

The International Journal of

Technology, Knowledge, and Society

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THE INTERNATIONAL JOURNAL OF TECHNOLOGY, KNOWLEDGE, AND SOCIETY

<http://techandsoc.com/>

First published in 2013 in Champaign, Illinois, USA
by Common Ground Publishing
University of Illinois Research Park
2001 South First St, Suite 202
Champaign, IL 61820 USA

www.CommonGroundPublishing.com

ISSN: 1832-3669

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The International Journal of Technology, Knowledge, and Society is a peer-reviewed scholarly journal.

Typeset in CGScholar.
<http://www.commongroundpublishing.com/software/>

Transforming Education with New Media: Participatory Pedagogy, Interactive Learning and Web 2.0

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Abstract: The possibilities that online platforms and new media technologies provide, in terms of human connection and the dissemination of information, are seemingly endless. With Web 2.0, there is an exchange of messages, visions, facts, fictions, contemplations, accusations, exclamations and declarations buzzing around a network of computers that connects students to the world, fast. Theoretically this digital connectivity is beneficial to curriculum development in higher education. It provides a bountiful repository of information accessible in a browser at the click of a mouse, all the time. Education is available, democratic and immersive. But is it worthwhile? Is the kind of education you can get from new media platforms and social media resources, with their click-on videos, rollover animations and unfiltered content, of a quality that educators should teach with Web 2.0 tools? This paper examines the use of new media in pedagogy, as it presents case studies of the integration of online tools and social media in an undergraduate course taught by the paper's author, at an urban research university in the United States. This paper includes an assessment of the use of new media tools in instruction, in terms of benefits and risks to students; an analysis of interactive learning, as it pertains to the case study; and, an investigation into the future potential of new media technologies in higher education teaching. Technology can transform the process of education. However, educators need to create standards that will guide students in the appropriate and responsible use of these tools. That way, this "new" education with its technology-based models for teaching will produce meaningful learning. Web 2.0 will produce Education 2.0.

Keywords: New Media, Social Networks, Interactive Learning, Participatory Pedagogy, Web 2.0, Education 2.0, Online Community, Digital Tools, "New" Curriculum, Micro-blogging

WEB 2.0 AND NEW EDUCATION

For the purpose of this paper, I am broadly defining Web 2.0 as a movement focused on technologies that engage the user. Typically these technologies are available to users via the Internet. User-centered design, which involves users in an intuitive way, is necessary. More broadly, Web 2.0 is part of new media.

New media, contrasted with conventional (or old) media, relies on a digital signal instead of an analog signal to communicate message. New media includes websites, wikis, interactive forums, e-learning systems, software, hardware, mobile devices, and the list goes on. (Many of these items will be discussed in this paper.) When successfully integrated into classroom instruction, new media can facilitate learning. A main reason is that technology spurs communication, supports information sharing, and creates access to data around the clock, by creating

a ubiquitous computing environment via networked technologies.¹ Moreover, new media with its Web 2.0 technologies can provide a foundation for the development of a new kind of education, one that is participatory and relies on digital innovation in the classroom. This *new education* engages students with technology like never before, and it provides unique and effective ways for students to interact with information. Thus, students learn differently. Web 2.0 can produce Education 2.0.

The Constant Inconstancy of New Media

It is important to acknowledge that new media is an ever-changing discipline. More than a discipline, new media is a bundle of concepts, a set of technologies, and a trend. New media is also a reinvention of older methods of content production and delivery, just now digital. It is all of these things—discipline, technologies, concept, trend, and method for content production and delivery—and it is *new*. A question must be asked, what is *new* about new media, and is it *always* new?

The tools, technologies and platforms of new media become obsolete quickly. New versions of hardware and software seem to be in an endless cycle of reinvention. Technology ages so quickly that many institutions update computer labs (hardware and software) when budgets allow, not when new versions comes out. Online learning systems like Blackboard become digital dinosaurs before instructors and students can master updates. Social networking platforms integrated into course instruction may disappear, bought by a competitor or losers in the battle for market share.

Because the tools, technologies and platforms change, the theories educators integrate into teaching new media must also change. There needs to be a theoretical dynamism that matches the ongoing evolution of the tools. This combined theoretical and practical flux is real. It is necessary to embrace this *constant inconstancy* when educating with new media. With new media, a successful pedagogy is an evolutionary one.

Theory, Practice and Technology

When teaching new media, theory and practice are best when inextricably linked, balanced. Students should know *why* are they are pushing buttons, not just *how* to push them. Practical proficiency with new media, i.e. using a tool or technology, should have at its core the knowledge of what a tool or technology is *capable* of producing, i.e. its potential, more than just what instructions say it will produce. Guided by instructors who balance theory and practice in pedagogy, who support the innovative application of new media, and who encourage students to think out of the box, students are more apt to use technology in new ways and produce purposeful digital works, that work.

Using new media in education should begin with a foundation in academic and artistic theories. This foundation informs students' use of tools, technologies and platforms. However, the foundation need not be rock-solid. Contrarily, it should be flexible. If the foundation is not flexible, learning can become routine. The routine of learning tools can create a kind of learning paralysis. In his book *Education Automation* R. Buckminster Fuller summarized what can happen when the educational process is not evolutionary, not flexible. His words from 1962 resonate as much today as they did then.

¹ T. Uemukai, J. Hara, and S. Nishi, "A method for selecting output data from ubiquitous terminals in a ubiquitous computing environment," *24th International Conference on Distributed Computing Systems Workshops Proceedings* (2004), 562–567.

I have been... looking exploratorily for tasks that needed to be done, which would, when done, provide tool complexes that would begin to operate inanimately at higher advantage for the new life... The new form must be spontaneously complimentary to the innate faculties and capabilities of life...

What usually happens in the educational process is that the faculties are dulled, overloaded, stuffed and paralyzed so that by the time most people are mature they have lost their innate capabilities.²

It is inevitable that the tools, technologies and platforms will continue to grow in number, scale and complexity, and they will continue to change. Also, it is likely that the trend toward more and more students entering universities with various new media devices, touch-screen and otherwise, will increase. At present, according to a study conducted by ECAR (EDUCAUSE Center for Applied Research), 55% of undergraduate college students own a smart phone and 11% own a tablet computer.³ These numbers are not very large, but they will likely grow into the future, as the price of devices falls over time.

When an instructor creates pedagogy that balances theory and practice, and it works, the instructor should stick with it. However, the instructor should adjust it as necessary, such as when updates of software tools are released. This will allow the instructor to “provide tool complexes that operate at a higher advantage.” This flexible approach will create an educational experience that is current and relevant, will help to prevent future paralysis of students’ faculties, and will spur the creation of original and interesting content.

New media technologies can deliver individualized instruction with online platforms, which takes into consideration individuals’ different learning styles.⁴ This individualized approach is one I take when integrating technologies, online and otherwise, in my new media courses, because how students choose to use tools affects how students learn.

When using technology, it is important to integrate a curricular framework that meets students’ personal goals, as well as educators’ learning outcomes. There is a five-stage process that leads to this kind of individualization, according to author Gilly Salmon, in his presentation of a model for learning via computer-mediated communication:

Stage One: Access and Motivation involves rendering technical support to participants. Stage Two: Online Socialization involves establishing participants’ online identities and finding others with whom to interact. At Stage Three: Information Exchange, giving information relevant to the course to each other. At Stage Four: Knowledge Construction, discussions occur and the interaction becomes more collaborative. At Stage Five: Development, looking for more benefits from the system to help participants achieve their personal goals...⁵

Salmon’s assertion—that access to technology, collaboration with tools, information exchange, and achieving personal goals—benefits students is one that can be applied to new media education across the board, online and otherwise.

² R. Buckminster Fuller, *Education Automation: Freeing the Scholar to Return to His Studies* (Southern Illinois Press/Carbondale & Simons, Inc., London, 1962), 7.

³ Eden Dahlstrom, Tom de Boor, Peter Grunwald, Martha Vockley, *National Study of Undergraduate Students and Information Technology, 2011*, (EDUCAUSE Center for Applied Research, Boulder, CO, October 2011), 7.

⁴ S. Y. Chen & R. J. Paul, “Editorial: Individual differences in web-based instruction—an overview,” *British Journal of Educational Technology* (Wiley Blackwell, London, 2003) (4), 385–392.

⁵ Gilly Salmon, *E-Moderating: The Key to Teaching and Learning Online* (Taylor and Francis, London, 2000), 28.

Participatory Pedagogy

Students expect to *be part of* the educational process, more than they expect to just attend class and receive knowledge. This is in large part because so much of what they do in life is device-driven and participatory. The undergraduate students, who participated in the case studies in this paper, are part of a young adult demographic that is familiar with and comfortable with the preponderance of technology that connects them to information and each other. (Their detailed demographic profile is presented later in this paper.) Because students use technology so intuitively, *how* they interact with it while learning is important to the development of pedagogy. Interaction with and personal investment in technology can exponentially affect how students learn. This is the underlying principal of *participatory pedagogy*.

Participatory pedagogy depends on an interactive learning environment in which students' hyper-involvement (a lot of interaction) results in alterations to conventional instructional methodologies and practices, as well as the creation of new ones. Interactivity in the classroom created by Web 2.0 tools provides for a high level of student participation that can influence how instructors formulate course modules, present course materials, and implement assessment strategies. With Web 2.0 technologies, students and instructors form a unique partnership actively focused on Education 2.0. Participatory pedagogy gives students the opportunity to co-create pedagogy with instructors.

The process of participatory pedagogy, which I have integrated into my classes, can be broken down into 5 steps:

1. Instructors require students to use digital devices, such as smart phones, tablet computers and laptops, in the classroom.
2. Instructors present course material and have students interact with it on their devices.
3. Students interact with the material, exhibiting certain behaviors while using the technology.
4. Instructors observe and record these behaviors, which show how students address issues, solve problems, contribute ideas, and ultimately learn.
5. Through these behaviors, instructors and students have created a new methodology for learning with devices.

It is important that in the classroom these devices are used only for educational purposes—no logging on to social networks, surfing the web, answering email, or unrelated texting. Instructors must strictly enforce this rule and focus technology use. By requiring the use of the devices solely for learning, instructors give new value to the devices, elevate the importance of technology in pedagogy, and more easily shape the learning processes with them. By using technology this way, students through their behavior make suggestions about how course material should be delivered, what kind of content should be presented, and how they learn. Yes, through behavior.

For example, in an advanced new media course I teach, students are required to collaborate with each other on the design and development of a media-rich site for a screen-based environment, such as a computer monitor, tablet computer, smart phone, or kiosk. There are many front- and back-end issues that need to be addressed for this complex project. In order to insure that students can produce a fully realized project:

- I put students into teams, which collectively will have the necessary design experience and technological proficiency.
- I ask students to come to a subsequent class with a portable digital device: laptop, smart phone or tablet computer.
- I present students with a design/production task that on a small scale represents the kind of project they will need to create during the course.
- I observe the process each student follows—how individuals use their devices to meet the objectives of the exercise I have given them.

- I note and record these processes.

I am not so much interested in what students produce, as I am in *how* they produce it, how they use technology to implement process. I am able to witness how using devices becomes an extension of each student's thought process, or psyche. When new media is so integrated with learning, some psychologists would refer to technology in education as *cognitive prosthetics*: tools that make students better thinkers.

The notion that of tools become an extension of students' psyches and, therefore, an integral part of their decision-making and learning processes, is supported by professor and theorist Andy Clark of Edinburgh University, who in a *New York Times* online commentary entitled "Out of Our Brains" wrote the following:

As our information-processing technologies improve and become better and better adapted to fit the niche provided by the biological brain, they become more like cognitive prosthetics: non-biological circuits that come to function as parts of the material underpinnings of minds like ours.⁶

In essence, new media tools and devices are so integrated in our experiences that we make decisions with them by using them. With participatory pedagogy, students take on an active role in shaping their own educational experience. The students, the users, are key players in how they will learn, and they are contributors to the pedagogy that teaches them. There is something both revolutionary and basic about this approach to curriculum development.

Using Tools with Purpose

In his book *Program or Be Programmed: Ten Commandments for a Digital Age* author Douglas Rushkoff tells us that we are part of a digital revolution in which we must "determine the value-creating capabilities of the technologies"⁷ we use, not to simply use them. Rushkoff puts forth that "we have embraced the new technologies of our age without really learning how they work and work on us."⁸ Similarly, some instructors of new media embrace new versions of tools without really learning how they work, how they are applied meaningfully, and how they affect learning. In production-oriented disciplines like electronic media, it is necessary to integrate software tools into classroom instruction, because software is standard in content creation in the professional world. However, it is sometimes *not* necessary to have the latest digital bell and whistle to teach new media topics. An instructor must address the theory/practice balance realistically and purposefully, when deciding what software is appropriate for courses.

For example, the focus of a new media course I teach is the creation of visual effects to support narrative in short digital films. The primary tool used in this course is Adobe After Effects. For a desktop tool, After Effects gives video artists a wide range of effects and filters that can be applied to digital video footage. In this course, students are instructed to create a narrative short film, in which visual effects help tell the story. The process begins by examining the narrative in order to choose effects that serve both plot and genre. Indeed, visual effects can be integral to presenting narrative, on a large or small screen, if used with purpose, meaning.

In 1990 psychologist Jerome Bruner gave a lecture at Harvard University entitled *Acts of Meaning*, in which he argued that meaning was a central concept of psychology and therefore should play a role in the human learning experience:

⁶ Andy Clark, "Out of Our Brains," published December 12, 2010, <http://opinionator.blogs.nytimes.com/2010/12/12/out-of-our-brains/>.

⁷ Douglas Rushkoff, *Program or Be Programmed: Ten Commandments of the Digital Age* (OR Books, New York, 2010), 13.

⁸ Rushkoff, *Program or Be Programmed*, 13.

[The aim of the research effort] was to discover and to describe formally the meanings that human beings created out of their encounters with the world, and then to propose hypotheses about what meaning-making processes were implicated. It focused on the symbolic activities that human beings employed in constructing and making sense not only of the world, but of themselves.⁹

In this lecture Bruner presented research findings that supported the notion of a cognitive revolution, with a fixation on mind as “information processor.” He stated that this fixation has led psychology away from the deeper objective of understanding the mind as a creator of meanings. We can learn from Bruner’s research, as we apply his conclusions to our integration of digital tools into education. Employing “meaning-making processes” in the instruction of new media should be a primary objective, despite the individualization of education and the high-level of participation students will have in the creation of teaching methodologies in new education, mentioned earlier in this paper. Though instructors may be evolving into facilitators of experience as much as they are conveyors of information, the process of education, whether interactive or presentational, must be focused on meaning—using the proper tools in the right way to produce purposeful results. This was the objective in each of the case studies conducted with my students for this paper.

The demographic of the student participants appears below:

Demographic Profile of Student Participants in Case Studies on the Integration of New Media into Classroom Instruction

Number of Students: 30 (in each case study)	
Age Range	18–21 years
Gender Ratio	Male 65%; Female 35%
Occupation	Student, Part-Time Employment
Home Location	Midwest, United States 90%; Other 10%
Student Status	Undergraduate

Micro-blogging in the Classroom

Whether you are a member of Twitter or not, it is a fact that the social media website, which is specifically a micro-blog, continues to gain momentum as a socially acceptable way to communicate ideas, thoughts, feelings and information to a global audience, in an unfiltered forum that can be democratic, chaotic or both. I will not analyze the merits of Twitter and other social media platforms that provide users with a quick, widespread means of communication. I will, however, provide an overview of Twitter in classroom instruction.

I conducted a case study with an undergraduate course of mine called Digital Core. This freshman-level, introductory and required course presents students with an overview of new media methodologies and practices, with an emphasis on electronic media production. So, it was fitting that I would integrate the use of Twitter in several instructional modules. The modules focused on social media, specifically micro-blogging, and its impact on in-class communication. Students were required to use Twitter and analyze its strengths and weaknesses in terms of how it facilitated their individual participation in class, as well as the overall experience

⁹ Jerome Bruner, *Acts of Meaning: Four Lectures on Mind and Culture (Jerusalem-Harvard Lectures)*, (Harvard University Press, Cambridge, MA, 1990), 2.

of micro-blogging in an educational environment. Some of the results of this case study were surprising to me.

Case Study: Engaging Students with Twitter

The study began with making sure all students had Twitter accounts. As streamlined as the process of creating an account is and as ubiquitous as Twitter has become, I learned that a large number of my students, approximately 65%, did not have a Twitter account. Surprise number 1. The process of creating an account and becoming a member of Twitter is straightforward. The basic steps are as follows:

1. Create a unique user name preceded by “@” and create a password.
2. Post statements on the website that do not exceed 140 characters in length. This is called Tweeting. Though the length of individual Tweets is set. The content of these statements can be anything you want.
3. Elect to follow other Twitter members or not. If you follow them, you can aggregate their comments online for easy access and reading. This became an integral part of the exercise.

I had three objectives in integrating Twitter into the classroom experience:

1. Twitter would provide a new way to engage students with the subject matter via a third party tool. Students who might be diffident or not accustomed to reacting verbally in class would have a new opportunity to be heard. Instead of raising hands to offer answers to questions, students would post their responses on Twitter in class in real time via a laptop (with wireless Internet connection) or mobile device.
2. Because each posting on Twitter is limited to 140 characters, students would be challenged to express themselves succinctly. They would need to distill a response to its essence, a useful exercise in quick, direct communication. Formal punctuation has unfortunately become liability with the integration of devices and new media into instruction, and it was evident to me that micro-blogging in the classroom, with its space and time constraints, needed to focus on *what* was being communicated more than *how* it was communicated.
3. Twitter would allow me to aggregate students’ responses, i.e. Tweets, and make them available online. This way all students could read all responses both in and outside of the classroom, providing students with the opportunity to further reflect on the subject matter. In this instance, Twitter would become an archive of commentary in the classroom.

At the end of the tutorials and exercises, all three objectives were realized, some with more success than others.

1. The first objective—engaging students via a third party tool (Twitter)—did indeed encourage diffident students to participate in the discussions. Micro-blogging with Twitter gave every student an equal opportunity to contribute to the in-class discussions.
2. The second objective—limiting comments to 140 characters—had a mixed result. Most of my students rose to the challenge of thinking meaningfully about what they wanted to communicate, and through trial and error (writing several drafts) how they could best communicate their message with 140 characters. Some students became frustrated and simply typed until they reached 140 characters, posting incomplete comments or ones that did not fully express their message. As expected, punctuation was messy or absent.
3. The third objective—aggregating comments for reflection and discussion—was successful in that comments were archived and available online. However, unless students were encouraged to revisit the Twitter postings, more than often they did not. Therefore, in the future when I repeated this exercise, I made a point of adding a module that required stu-

dents to revisit Twitter, reread class commentary, and post a *concluding Tweet*. This brought the experience full-circle.

Tweets are only 140 characters long. How can a component of pedagogy, of serious instruction, be only 140 characters and be relevant? In this case less is not more, because inherent in this kind of message brevity are limitations that undermine communication of message, unless, as illustrated in the case study above (Engaging Students with Twitter), the 140 characters are reused and repurposed in an educational process that is structured and deliberate.

Interactive Content and Online Agenda

Wikis are powerful communication tools. In theory, wikis provided for the democratic and unfiltered contributions of content to online platforms. Wikis are websites that, with their server-based technology, allow users to create and edit content, and view the changes they made to that content live in a web browser, usually on the fly and in real time. Take the popular Wikipedia (wikipedia.org) for example. This website is an online encyclopedia, where users can update information that anyone in the world has posted and amend the postings as they wish, ostensibly. Wikipedia, like other wikis, also serves as a repository of information that, good or bad, valuable or not, has become a resource for both curiosity seekers and researchers. In theory wikis provide online, interactive environments for the free exchange of ideas and knowledge, allowing the whole world to participate in creation of content online.

I have described the mission of wikis with the condition: in theory. This is important because free flowing expression and fact do not necessarily mix. In practice, therefore, in order to be reliable, wikis must filter their information, at least to a degree. Wikis that have been online for a considerable amount of time have repeat users. Loyal users would not and should not tolerate erroneous information. So, in order to have longevity and be construed as a trusted resource, wikis must monitor postings and filter them.

The filtering happens behind the scenes, often unbeknownst to the user, by a staff of people employed by the wiki. For example, edit a post on Wikipedia and you will see that the change does not go live immediately. It is being reviewed. And, if there is objectionable content added, *objectionable* as defined by Wikipedia's management, the content may never go live.

There is some level of deception here. The freedom of online expression (change it and it will appear) is not total. With filtering, information sharing that, in theory, is integral to the wiki experience is marginalized. More than that, some information in wikis is plain wrong. Wikis that are controlled by parties focused on communicating *their* message and putting forth *their* agenda can easily do so with filtering. These kinds of messages, which may likely contain misinformation, could be harmful to a trusting global public.

So, how do you know if the information is real? How can you trust what you read?

What about the democratic exchange of ideas? All of these questions about wikis lead to an even more important one: are wikis appropriate in education as a tool for teaching? I set out to answer that question with this next case study.

Case Study: Analysis of Content in Wikis

In this case study, I integrated the use of four kinds wikis into a class module on the analysis of online content. Students were tasked with determining if the content presented in each of the four wikis was of real value or if it was misinformation, perhaps agenda-driven. They would do so by answering the following two questions:

1. Does the wiki provide useful, unbiased information that is consistent with the mission of the wiki?
2. Can the user contribute content to the wiki that will add to the wiki's overall usefulness?

The four types of wikis employed were as follows:

1. An informational resource wiki, like Wikipedia,
2. A communications wiki, specifically one focused on the broadcast industry,
3. An arts wiki, and
4. An education wiki, specifically one focused on higher education.

Students visited each of the four wikis. They were instructed to contribute content to each wiki that would make it better, richer. What students found upon logging to the wikis was interesting and varied. Students found that with behemoth wikis that were well established and well funded, like Wikipedia, new content would be reviewed before going live (as explained earlier). Here democratic expression and immediacy were compromised.

Students found dated wikis that were created for specific past events, like education conferences. Some of these had interesting postings, especially if users were interested in the niche topic of the conference, but the content was years old, and the wikis were closed—no further content edits or additions could be made. Here, obsolescence was an issue.

Still others came across wikis that were industry generated. Commercial groups have moved into the wiki world, in an effort to promote their clients and products to the Net-surfing public. These groups are focused on using wikis for public relations, marketing and advertising purposes. Here there was complete message control by the groups hosting the wiki. For example, one broadcast company was promoting a new television series in the wiki. When students edited information about the characters in the series, the students' changes appeared live, but for a brief period of time. When students logged on the next day to check on the status of their changes, they found that the broadcast company had revised the content back to the original. It was evident there was no true freedom of expression, and, from feedback I received from my students, there was a sense that the user was being duped.

This was a useful learning module for students. Some students, who prior to participating in this exercise had a sense that the Internet would only provide the best possible information to the public, learned otherwise. They saw that agenda can be a part of their online experiences, and that digital democracy can sometimes be digital autocracy. The exercise also provided students with the opportunity to think critically about the presentation of content online, to distinguish between a filtered and unfiltered environment, and to take the time to analyze content in order to assess if it had merit.

Conclusion

New media has transformed education by meshing hardware, software, theory and practice in pedagogy. Even a basic e-learning system, like Blackboard, allows instructors to supplement teaching with rich media and interactive forums, taking instruction out of the conventional classroom and making the teaching/learning experience a more converged and participatory one. Add electronic pads, e-readers and mobile devices, and education becomes even more significantly convergent.

Because convergence is a vital component of our electronic media culture, educators should provide students with a strong conceptual and methodological grasp of issues in the intersecting worlds of emerging technologies, new media production and content creation. In current electronic media pedagogy it seems obvious that devices, handheld or otherwise, and the software that run them must be integrated into instruction and learning.

Jean Piaget, the psychologist and philosopher, said, "The principle goal of education in the schools should be creating men and women who are capable of doing new things, not simply

repeating what other generations have done.”¹⁰ New media technologies certainly provide a means for doing and creating *new* things. Because the technologies come and go so quickly, there will always be the creation of new things in the classroom. But educators must put meaning and purpose into the mix with new. Whatever technology is employed, it is imperative to striking a balance between old and new, conventional and technological, and theory and practice.

With the fast-changing state of new media, how do serious educators of new media create a focused pedagogy? The answer is simple: consistently be inconsistent. Change up the tools and technologies that one integrates into teaching, but do so with purpose. Make sure the integration of technology in pedagogy has been tested in the classroom and evaluated out of the classroom, and most importantly that the tools serve the curriculum.

Then, Web 2.0 will produce Education 2.0.

¹⁰ Jean Piaget, “Piaget Rediscovered” in *Journal of Research in Science Teaching* 2, Eleanor Duckworth (1964): 175.

REFERENCES

- Bruner, Jerome. *Acts of Meaning: Four Lectures on Mind and Culture (Jerusalem-Harvard Lectures)*. Cambridge, MA, Harvard University Press, 1990.
- Chen, S. Y. and Paul, R. J. "Editorial: Individual differences in web-based instruction-an overview," *British Journal of Educational Technology*. London, Wiley, 2003.
- Dahlstrom, Eden, de Boor, Tom, Grunwald, Peter, and Vockley, Martha. *National Study of Undergraduate Students and Information Technology, 2011*. Boulder, CO, EDUCAUSE Center for Applied Research, 2011.
- Fuller, R. Buckminster. *Education Automation: Freeing the Scholar to Return to His Studies*. London, Southern Illinois Press/Carbondale & Simons Inc, 1962.
- Piaget, Jean. "Piaget Rediscovered," *Journal of Research in Science Teaching*. Eleanor Duckworth, 1964.
- Rushkoff, Douglas. *Program or Be Programmed: Ten Commandments of the Digital Age*. New York, OR Books, 2010.
- Salmon, Gilly, E. *Moderating: The Key to Teaching and Learning Online*. London, Taylor and Francis, 2000.
- Uemukai, T., Hara, J., and Nishi, S. "A method for selecting output data from ubiquitous terminals in a ubiquitous computing environment," *24th International Conference on Distributed Computing Systems Workshops Proceedings*, 2004.

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The International Journal of Technology, Knowledge and Society explores innovative theories and practices relating technology to society. The journal is cross-disciplinary in its scope, offering a meeting point for technologists with a concern for the social and social scientists with a concern for the technological. The focus is primarily, but not exclusively, on information and communications technologies.

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The International Journal of Technology, Knowledge and Society is a peer-reviewed scholarly journal.

ISSN 1832-3669

