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Confronting the Challenges of Participatory Culture: Media Education for the 21st Century

Henry Jenkins, Director of the Comparative Media Studies Program at the Massachusetts Institute of Technology

with

Katie Clinton
Ravi Purushotma
Alice J. Robison
Margaret Weigel

MacArthur
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What Should We Teach? Rethinking Literacy

"Adolescents need to learn how to integrate knowledge from multiple sources, including music, video, online databases, and other media. They need to think critically about information that can be found nearly instantaneously through out the world. They need to participate in the kinds of collaboration that new communication and information technologies enable, but increasingly demand. Considerations of globalization lead us toward the importance of understanding the perspective of others, developing a historical grounding, and seeing the interconnectedness of economic and ecological systems."
—Bertram C. Bruce (2002)

A definition of twenty-first century literacy offered by the New Media Consortium (2005) is "the set of abilities and skills where aural, visual, and digital literacy overlap. These include the ability to understand the power of images and sounds, to recognize and use that power, to manipulate and transform digital media, to distribute them pervasively, and to easily adapt them to new forms" (p. 8). We would modify this definition in two ways. First, textual literacy remains a central skill in the twenty-first century. Before students can engage with the new participatory culture, they must be able to read and write. Youth must expand their required competencies, not push aside old skills to make room for the new. Second, new media literacies should be considered a social skill.

New media literacies include the traditional literacy that evolved with print culture as well as the newer forms of literacy within mass and digital media. Much writing about twenty-first century literacies seems to assume that communicating through visual, digital, or audiovisual media will displace reading and writing. We fundamentally disagree. Before students can engage with the new participatory culture, they must be able to read and write. Just as the emergence of written language changed oral traditions and the emergence of printed texts changed our relationship to written language, the emergence of new digital modes of expression changes our relationship to printed texts. In some ways, as researchers such as Black (2005) and Henry Jenkins (2006a) have argued, the new digital cultures provide support systems to help youth improve their core competencies as readers and writers. They may provide opportunities, for example, through blogs or live journals, for young people to receive feedback on their writing and to gain experience in communicating with a larger public, experiences that might once have been restricted to student journalists. Even traditional literacies must change to reflect the media change taking place. Youth must expand their required competencies, not push aside old skills to make room for the new.

The new literacies almost all involve social skills developed through collaboration and networking. These skills build on the foundation of traditional literacy, research skills, technical skills, and critical analysis skills taught in the classroom.

Beyond core literacy, students need research skills. Among other things, they need to know how to access books and articles through a library; to take notes on and integrate secondary sources; to assess the reliability of data; to read maps and charts; to make sense of scientific visualizations; to grasp what kinds of information are being conveyed by various systems of representation; to distinguish between fact and fiction, fact and opinion; to construct arguments and

marshal evidence. If anything, these traditional skills assume even greater importance as students venture beyond collections that have been screened by librarians and into the more open space of the web. Some of these skills have traditionally been taught by librarians who, in the modern era, are reconceptualizing their role less as curators of bounded collection and more as information facilitators who can help users find what they need, online or off, and can cultivate good strategies for searching material.

Students also need to develop technical skills. They need to know how to log on, to search, to use various programs, to focus a camera, to edit footage, to do some basic programming and so forth. Yet, to reduce the new media literacies to technical skills would be a mistake on the order of confusing penmanship with composition. Because the technologies are undergoing such rapid change, it is probably impossible to codify which technologies or techniques students must know.

As media literacy advocates have claimed during the past several decades, students also must acquire a basic understanding of the ways media representations structure our perceptions of the world; the economic and cultural contexts within which mass media is produced and circulated; the motives and goals that shape the media they consume; and alternative practices that operate outside the commercial mainstream. Such groups have long called for schools to foster a critical understanding of media as one of the most powerful social, economic, political, and cultural institutions of our era. What we are calling here the new media literacies should be taken as an expansion of, rather than a substitution for, the mass media literacies.

What New Skills Matter? New Social Skills and Cultural Competencies

All of these skills are necessary, even essential, but they are not sufficient, which brings us to our second point about the notion of twenty-first century literacy: the new media literacies should be seen as social skills, as ways of interacting within a larger community, and not simply an individualized skill to be used for personal expression. The social dimensions of literacy are acknowledged in the New Media Consortium's (2005) report only in terms of the distribution of media content. We must push further by talking about how meaning emerges collectively and collaboratively in the new media environment and how creativity operates differently in an open-source culture based on sampling, appropriation, transformation, and repurposing.

The social production of meaning is more than individual interpretation multiplied; it represents a qualitative difference in the ways we make sense of cultural experience, and in that sense, it represents a profound change in how we understand literacy. In such a world, youth need skills for working within social networks, for pooling knowledge within a collective intelligence, for negotiating across cultural differences that shape the governing assumptions in different communities, and for reconciling conflicting bits of data to form a coherent picture of the world around them.

We must integrate these new knowledge cultures into our schools, not only through group work but also through long-distance collaborations across different learning communities. Students should discover what it is like to contribute their own expertise to a process that involves many intelligences, a process they encounter readily in their participation in fan discussion lists or blogging. Indeed, this disparate collaboration may be the most radical element of new literacies: they enable collaboration and knowledge-sharing with large-scale communities that may never personally interact. Schools are currently still training autonomous problem-solvers, whereas as students enter the workplace, they are increasingly being asked to work in teams, drawing on different sets of expertise, and collaborating to solve problems.

Changes in the media environment are altering our understanding of literacy and requiring new habits of mind, new ways of processing culture and interacting with the world around us. We are just beginning to identify and assess these emerging sets of social skills and cultural competencies. We have only a broad sense of which competencies are most likely to matter as young people move from the realms of play and education and into the adult world of work and society. What follows, then, is a provisional list of eleven core skills needed to participate within the new media landscape. These skills have been identified both by reviewing the existing body of scholarship on new media literacies and by surveying the forms of informal learning taking place in the participatory culture. As suggested above, mastering these skills remains a key step in preparing young people "to participate fully in public, community, [Creative] and economic life" (New London Group, 2000, p. 9). In short, these are skills some youth are learning through participatory culture, but they are also skills that all youth need to learn if they are going to be equal participants in the world of tomorrow. We identify a range of activities that might be deployed in schools or afterschool programs, across a range of disciplines and subject matter, to foster these social skills and cultural competencies. These activities are by no means an exhaustive list but rather are simply illustrations of the kind of work already being done in each area. One goal of this report is to challenge those who have responsibility for teaching our young people to think more systematically and creatively about the many different ways they might build these skills into their day-to-day activities in ways that are appropriate to the content they are teaching.

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Core Media Literacy Skills

Play: the capacity to experiment with one's surroundings as a form of problem-solving

Play, as psychologists and anthropologists have long recognized, is key in shaping children's relationship to their bodies, tools, communities, surroundings, and knowledge. Most of children's earliest learning comes through playing with the materials at hand. Through play, children try on roles, experiment with culturally central processes, manipulate core resources, and explore their immediate environments. As they grow older, play can motivate other forms of learning.

Pratt (1991) describes what her son and his friend learned through baseball card collecting:

> Sam and Willie learned a lot about phonics that year by trying to decipher surnames on baseball cards, and a lot about cities, states, heights, weights, places of birth, stages of life.… And baseball cards opened the door to baseball books, shelves and shelves of encyclopedias, magazines, histories, biographies, novels, books of jokes, anecdotes, cartoons, even poems.… Literacy began for Sam with the newly pronounceable names on the picture cards and brought him what has been easily the broadest, most varied, most rewarding, and most integrated experience of his 13-year life. (pp. 33-34)

Pratt's account suggests this playful activity motivated three very different kinds of learning. First, the activity itself demanded certain skills and practices, which had clear payoffs for academic subjects. For example, working out batting averages gave Sam an occasion to rehearse his math skills; arranging his cards introduced him to the process of classification; and discussing the cards gave him reason to work on his communication skills. On another level, the cards provided a scaffold, which motivated and shaped his acquisition of other forms of school knowledge. The cards inspired Sam to think about the cities where the teams were located and acquire map-reading skills. The history of baseball provided a context through which to understand twentieth century American history. The interest in stadiums introduced some basics about architecture. Third, Sam developed a sense of himself as a learner: "He learned the meaning of expertise, of knowing about something well enough that you can start a conversation with a stranger and feel sure of holding your own" (Pratt, 1991, p. 34).

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Game designer Scott Osterweill (*The Logical Journey of the Zoobinis*) has described the mental attitude that surrounds play as highly conducive for learning:

> When children are deep at play they engage with the fierce, intense attention that we'd like to see them apply to their schoolwork. Interestingly enough, no matter how intent and focused a child is at that play, maybe even grimly determined they may be at that game

> play, if you asked them afterwards, they will say that they were having fun. So, the fun of game play is not non-stop mirth but rather the fun of engaging of attention that demands a lot of you and rewards that effort. I think most good teachers believe that in the best moments, classroom learning can be the same kind of fun. But a game is a moment when the kid gets to have that in spades, when the kid gets to be focused and intent and hard-working and having fun at the same time.
> (Jenkins, 2006b)

You will note here a shift in emphasis from fun (which in our sometimes still puritanical culture gets defined as the opposite of seriousness) to engagement. When individuals play games, a fair amount of what they end up doing is not especially fun at the moment. It can be a grind, not unlike homework. The efforts allows the person to master skills, collect materials, or put things in their proper place in anticipation of a payoff down the line. The key is that this activity is deeply motivated. The individual is willing to go through the grind because there is a goal or purpose that matters to the person. When that happens, individuals are engaged, whether that be the engagement in professional lives or the learning process or the engagement that some find through playing games. For the current generation, games may represent the best way of tapping that sense of engagement with learning.

While, to date, much of the discussion of games and education has considered games as a tool to motivate youth to learn other kinds of content (Pratt's move from baseball cards to geography), there is a growing recognition that play itself, as a means of exploring and processing knowledge and of problem-solving, may be a valuable skill children should master in preparation for subsequent roles and responsibilities in the adult world.

Part of what makes play valuable as a mode of problem-solving and learning is that it lowers the emotional stakes of failing: players are encouraged to suspend some of the real world consequences of the represented actions, to take risks and learn through trial and error. The underlying logic is one of die and do over. As Gee (2003) has noted, children often feel locked out of the worlds described in their textbooks through the depersonalized and abstract prose used to describe them. Games construct compelling worlds players move through. Players feel a part of those worlds and have some stake in the events unfolding. Games not only provide a rationale for learning: what players learn is put immediately to use to solve compelling problems with real consequences in the world of the game. Game designer Will Wright (*Sim City, The Sims*) (Jenkins, 2005a) has argued:

> In some sense, a game is nothing but a set of problems. We're actually selling people problems for 40 bucks a pop.... And the more interesting games in my opinion are the ones that have a larger solution space. In other words, there's not one specific way to solve a puzzle, but, in fact, there's an infinite range of solutions. .... The game world becomes an external artifact of their internal representation of the problem space (p. 21).

For Wright, the player's hunger for challenge and complexity motivates them to pick up the game in the first place.

Games follow something akin to the scientific process. Players are asked to make their own discoveries and then apply what they learn to new contexts. No sooner does a player enter a game than he or she begins by identifying core conditions and looking for problems that must be addressed. On the basis of the available information, the player poses a certain hypothesis about how the world works and the best ways of bringing its properties under their control. The player tests and refines that hypothesis through actions in the game, which either fail or succeed. The player refines the model of the world as he or she goes. More sophisticated games allow the person to do something more, to experiment with the properties of the world, framing new possibilities, which involves manipulating relevant variables and seeing what happens. Meta-gaming, the discourse that surrounds games, provides a context for players to reflect on and articulate what they have learned through the game. Here, for example, is how Kurt Squire (in press) describes the meta-gaming that occurs with *Civilization III*:

Children often feel locked out of the worlds described in their textbooks through the depersonalized and abstract prose used to describe them. Games construct compelling worlds players move through. Players feel a part of those worlds and have some stake in the events unfolding.

> Players enroll as advanced players, having spent dozens, if not hundreds of hours with the game and having mastered its basic rules. As players begin to identify and exploit loopholes, they propose and implement changes to the games' rules, identify superior strategies, and invent new game rule systems, including custom modifications and scenarios.

Some have expressed skepticism that schools should or could teach young people how to play. This resistance reflects the confusion between play as a source of fun and play as a form of engagement. Play in the context argued here is a mode of active engagement, one that encourages experimentation and risk-taking, one that views the process of solving a problem as important as finding the answer, one that offers clearly defined goals and roles that encourage strong identifications and emotional investments. This form of play is closely related to two other important skills, simulation and performance.

What Might Be Done

Educators (in school and out) tap into play as a skill when they encourage free-form experimentation and open-ended speculation.

- History teachers ask students to entertain alternative history scenarios, speculating on what might have happened if Germany had won World War II or if Native Americans had colonized Europe. Such questions can lead to productive explorations centering on why and how certain events occurred, and what effect they had. Such questions also have no right and wrong answers; they emphasize creative thinking rather than memorization; they allow diverse levels of engagement; they allow students to feel less intimidated by adult expertise; and they also lend themselves to the construction of arguments and the mobilization of evidence.

- Art and design students are turned loose with a diverse array of everyday materials and encouraged to use them to solve a specified design problem. Such activities encourage students to revisit familiar materials and everyday objects with fresh perspectives, to think through common problems from multiple directions, and to respect alternative responses to the same challenge. This approach is closely associated with the innovative design work of Ideo, a Palo Alto consultancy, but can also be seen in various reality television programs, such as Project Runway or The Iron Chef, which require contestants to adopt distinctive and multiple approaches to shared problems.

- Games offer the potential to learn through a new form of direct experience. Physics teachers use the game *Supercharged*, which was developed as part of the MIT Games to Teach initiative, to help students to better understand core principles of electromagnetism. As a means for learning the laws of electromagnetism through first-hand experience, students navigate electromagnetic mazes by planting electrical charges that attract or repel their vehicles. Teachers can then build on this intuitive and experiential learning in the classroom, introducing equations, diagrams, or visualizations that help them to better understand the underlying principles that they are deploying and then sending them back to play through the levels again and improve their performance.

Simulation — the ability to interpret and construct dynamic models of real world processes

New media provides powerful new ways of representing and manipulating information. New forms of simulation expand our cognitive capacity, allowing us to deal with larger bodies of information, to experiment with more complex configurations of data, to form hypotheses quickly and test them against different variables in real time. The emergence of systems-based thinking has arisen hand in hand with the development of digital simulations. Across a range of academic and professional fields, simulations can be effective in representing known knowledge or in testing emerging theories. Because simulations are dynamic, and because they are governed by the systematic application of grounding assumptions, they can be a tool for discovery as researchers observe the emergent properties of these virtual worlds. We learn through simulations by a process of trial and error: new discoveries lead researchers to refine their models, tweaking particular variables, trying out different contingencies. Educators have always known that students learn more through direct observation and experimentation than from reading about something in a textbook or listening to a lecture. Simulations broaden the kinds of experiences users can have with compelling data, giving us a chance to see and do things that would be impossible in the real world.

Contemporary video games allow youth to play with sophisticated simulations and, in the process, to develop an intuitive understanding of how we might use simulations to test our assumptions about the way the world works. Former head of Xerox Parc, John Seely Brown (Kahan, 2003), tells the story of a 16-year-old boy, Colin, for whom the game, *Caesar III*, had shaped his understanding of the ancient world:

> Colin said: 'I don't want to study Rome in high school. Hell, I build Rome every day in my on-line game'...Of course, we could dismiss this narrative construction as not really being a meaningful learning experience, but a bit later he and his dad were engaged in a discussion about the meaningfulness of class distinctions--lower, middle, etc.--and his dad stopped and asked him what class actually means to him. Colin responded:
>
> 'Well, it's how close you are to the Senate.'
>
> 'Where did you learn that, Colin?'
>
> 'The closer you are physically to the Senate building, the plazas, the gardens, or the Triumphal Arch raises the desirability of the land, makes you upper class and produces plebeians. It's based on simple rules of location to physical objects in the games [Caesar III].' Then, he added, 'I know that in the real world the answer is more likely how close you are to the senators, themselves - that defines class. But it's kinda the same.'

Colin's story illustrates two important aspects of simulations for learning. First, students often find simulations far more compelling than more traditional ways of representing knowledge; consequently, they spend more time engaging with them and make more discoveries. Second, students experience what they have learned from a robust simulation as their own discoveries. These simulations expose players to powerful new ways of seeing the world and encourage them to engage in a process of modeling, which is central to the way modern science operates. Many contemporary games—Railroad Tycoons, for instance—incorporate spreadsheets, maps, graphs and charts, which students must learn to use to play the game. Students are thus motivated to move back and forth across this complex and integrated information system, acting on the simulated environment on the basis of information gleaned from a wide range of different representations.

As games researcher Eric Klopfer cautions, however, simulations enhance learning only when we understand how to read them:

> As simulations inform us on anything from global warming to hurricane paths to homeland security, we must know how to interpret this information. If we know that simulations give us information on probabilities we can make better decisions. If we understand the assumptions that go into simulations we can better evaluate that evidence and act accordingly. Of course this applies to decision makers who must act upon that information (police, government, insurance, etc.); it also is important that each citizen should be able to make appropriate decisions themselves based on that information. As it is now, such data is either interpreted by the general public as 'fact' or on the contrary 'contrived data with an agenda.' Neither of these perspectives is useful and instead some ability to analyze and weigh such evidence is critical. Simulations are only as good as their underlying models. In a world of competing simulations, we need to know how to critically assess the reliability and credibility of different models for representing the world around us (personal correspondence).

Students who use simulations in learning have more flexibility to customize models and manipulate data in exploring questions that have captured their own curiosity. There is a thin line between reading a simulation (which may involve changing variables and testing outcomes) and designing simulations. As new modeling technologies become more widely avail-

able and as the toolkits needed to construct such models are simplified, students have the opportunity to construct their own simulations. Bogost (2005) argues that computer games foster what he calls procedural literacy, a capacity to restructure and reconfigure knowledge to look at problems from multiple vantage points, and through this process to develop a greater systemic understanding of the rules and procedures that shape our everyday experience. Bogost writes, "Engendering true procedural literacy means creating multiple opportunities for learners—children and adults—to understand and experiment with reconfigurations of basic building blocks of all kinds" (p. 36). Young people are learning how to work with simulations through their game play, and schools should build on such knowledge to help them become critical readers and effective designers of simulation and modeling tools. They need to be given a critical vocabulary for understanding the kind of thought experiments performed in simulations and the way these new digital resources inform research across a range of disciplines.

What Might Be Done

Students need to learn how to manipulate and interpret existing simulations and how to construct their own dynamic models of real world processes.

- Teachers in a business class ask students to make imaginary investments in the stock market and then monitor actual business reports to track the rise and falls of their "holdings." This well-established classroom practice mirrors what youth do when they form fantasy sports leagues, tracking the performance of players on the sports page to score their results, and engaging in imaginary trades to enhance their overall standings. Both of these practices share a movement between imaginary scenarios (pretend investments or teams) and real-world data. The simulated activities introduce them to the logics by which their real-world counterparts operate and to actual data sets, research processes, and information sources.

- Groups such as OnRampArts in Los Angeles, Urban Games Academy in Baltimore and Atlanta, or Global Kids in New York City involve kids in the design of their own games. These groups see a value in having youth translate a body of knowledge—the history of the settlement of the New World in the case of OnRampArts's Tropical America—into the activities and iconography of games. Here, students are encouraged to think of alternative ways of modeling knowledge and learn to use the vocabulary of game design to represent central aspects of the world around them.

- Simulation games such as SimCity provide a context for learning a skill Clark calls "embracing co-control" (2003, p 160). In this game, creating and maintaining a city requires exerting various forms of indirect control. Instead of having a top-down control to design a happy, thriving city, the player must engage in a bottom-up process, where the player "grows" a city by manipulating such variables as zoning and land prices. It is only through gaining a familiarity with all the parts of the system, and how they interact, that the player is able to nudge the flow in a way that respects the flow. Such a skill can be understood as a process of "com[ing] to grips with decentralized emergent order" (p. 160); a mandatory skill for understanding complex systems.

- Students in New Mexico facing a summer of raging forest fires throughout their home state used simulations to understand how flames spread. Manipulating factors such as density of trees, wind, and rain, they saw how even minute changes to the environmental conditions could have profound effects on fire growth. This helped them understand the efficacy of common techniques such as forest thinning and controlled burns.

Performance — the ability to adopt alternative identities for the purpose of improvisation and discovery

We have thus far focused on game play as a mode of problem-solving that involves modeling the world and acting on those models. Yet, game play also is one of a range of contemporary forms of youth popular culture that encourages young people to assume fictive identities and through this process develop a richer understanding of themselves and their social roles. In *What Video Games Have to Teach Us About Learning and Literacy* (2003), Gee coins the term, "projective identity" to refer to the fusion that occurs between game players and their avatars, the personas they assume in the game. Gee sees the term as playing on two senses of the word *project*: "to project one's values and desires onto the virtual character" and "seeing the virtual character as one's own project in the making" (p. 55). This projected identity allows the player to strongly identify with the character and thus have an immersive experience within the game, and at the same time to use the character as a mirror to reflect on his or her own values and choices.

Testing the educational video game, *Revolution*, with middle-school students, Francis (2006) found several compelling examples in which projected identities had pedagogical payoffs for participants. For example, Margaret, a girl who played a loyalist character in the game, which was set in colonial Williamsburg on the eve of the American Revolution, was shaken when she was shot by the redcoats in the midst of a street riot:

> The townspeople were very mad. They went to the Governor's mansion to attack. I support the red coats, but they started shooting at me, and then they arrested me. I felt horrified that they would do something like that to me. I don't even believe in violence. I wonder what is going to happen to me. I run the tavern and I have no family. Will I get sent back to England or will I be able to stay here?

She had seen herself as a supporter of the British troops, and at worst an innocent bystander, but she came away from the experience with critical insights about political violence.

Francis built on this process of introspection and projection by asking students to write journals or compose short films reflecting in character on the events that unfolded in the game. In constructing and inhabiting these virtual characters, participants drew together multiple sources of knowledge, mixing things they had read or learned in other educational contexts, information explicitly contained within the game, and their own introspection based on life experiences to create characters that were more compelling to them than the simple digital avatars the designers had constructed. One can think of the process as closely paralleling what actors do when preparing for a role. Here, for example, is how a young African-American girl explained her

experiences in playing Hannah, a house slave (an explanation that reaches well beyond anything explicitly present in the games and she even invents actions for the nonplayer characters in order to help her make sense of her place in the social order being depicted):

> You don't really have as much support as you would like because being a house slave they call you names, just because most of the time you're lighter skin—you're the master's kid technically...I had to find the ways to get by because, you know, it was hard. On one side, you don't want to get on the Master's bad side because he can beat you. On the other side, the slaves, they ridicule you and are being mean.

Children acquire basic literacies and competencies by learning to manipulate core cultural materials. In *The Braid of Literature: Children's World of Reading,* Wolf and Heath (1992) trace the forms of play that shaped Wolf's two preschool-aged daughters' relationship to the "world of words" and stories. Wolf and Heath are interested in how children embody the characters, situations, generic rules, and even specific turns of phrase, through their sociolinguistic play. Children do not simply read books or listen to stories; they re-enact these narratives in ways that transform them, and in this process, the authors argue, children demonstrate they really understand what they have read. This play helps them to navigate the world of stories and, at the same time, elements of stories help them to navigate real-world social situations. Children learn to verbalize their experiences of reading through these performances, and in the process develop an analytic framework for thinking about literacy.

Dyson's *Writing Superheroes: Contemporary Childhood, Popular Culture, and Classroom Literacy* (1997) extends this analysis of the connection between performance and literacy into the classroom, exploring how educators have used dramatizations to teach children to reflect more deeply on their experiences of stories. Wolf and Heath describe individualized play in the context of the home; Dyson recounts social play among peers. In both cases, children start with a shared frame of reference—stories they have in common, genres they all understand—to ensure that they understand the roles they are to play and the rules of their interaction. Performing these shared fantasies (such as the scenarios that emerge in superhero comics) allows children to better understand who they are and how they connect with the other people around them.

Role play is very popular with contemporary youth, whether cos-play of young anime fans (costume play based on characters from anime), the fusion with a digital avatar in computer gaming or fantasy role play, or the construction of alternative personas in subculture communities such the Goths. Such play has long been understood as testing identities, trying on possible selves, and exploring different social spaces. Stern (2005) stresses the forms of self-representation that are evident on teenagers' websites and blogs. "The ability to repeatedly reinvent oneself is particularly appealing since home pages and blogs can be updated as often as desired and because they may be produced anonymously" (p. 57).

These more elaborated and complex forms of role play may also provide a point of entry into larger spheres of knowledge. Consider, for example, this interview with a 17-year-old American girl:

> I have been really interested in Japanese culture since I was in sixth grade. When I was in the seventh grade, I started studying Japanese on my own. When I got into high school, I started taking Japanese courses at Smith College. I got into costuming through anime, which is actually how I got interested in Japanese. And I taught myself how to sew. …I'm a stage hog. I like to get attention and recognition. I love acting and theater. The biggest pay-off of cos-play [costume play] is to go to the conventions where there are other people who know who you are dressed as and can appreciate your effort. At the first convention I ever went to, I must have had fifty people take my picture and at least ten of them came up and hugged me. It's almost like whoever you dress up as, you become that person for a day….People put the pictures up on their websites after the con. So after a con, you can search for pictures of yourself and if you are lucky, you will find five or ten" (Bertozzi and Jenkins, forthcoming).

For the young girl, assuming the role of a Jpop character demonstrated her mastery over favorite texts. Assuming this new identity requires a close analysis of the originating texts, genre conventions, social roles, and linguistic codes. She must go deep inside the story to find her own place within its world. In this case, she also has to step outside the culture that immediately surrounds her to embrace a text from a radically different cultural tradition. She has sought out more information about forms of Asian popular culture. In the process, she has begun to re-imagine her relations to the world—as part of an international fan culture that remains deeply rooted in the everyday life of Japan. This search for more information expresses itself across a range of media: the videos or DVDs she watches of Japanese anime, the recordings of Jpop music on MP3 or CDs, information on the Internet and information she shares with her fellow fans about her own activities, the costumes she generates as well as the photographs of her costumes, the magazines and comics she reads to learn more about Japanese popular culture, and her face-to-face contacts with fellow fans. These activities that center on popular culture in turn translate into other types of learning. As a middle-school student, she began to study Japanese language and culture first on her own and later at a local college.

Role play, in particular, should be seen as a fundamental skill used across multiple academic domains. So far, we have suggested its relevance to history, language arts, and cultural geography. Yet, this only scratches the surface. Whether it be children on a playground acting out and deciphering the complex universe of Pokemón, or Orville Wright pretending to be a buzzard gliding over sand dunes, or Einstein imagining himself to be a photon speeding over the earth, role playing enables us to envision and collaboratively theorize about manipulating entirely new worlds. Consider, for example, the way role play informs contemporary design processes. Increasingly, designers construct personae of would-be users, who can serve to illustrate different contexts of use or different interests in the product. These personae are then inserted into fictional scenarios, allowing designers to test the viability of their design and its ability to serve diverse needs. In some cases, this process also involves the designers themselves acting out the different roles and thereby identifying the strengths and limits of their approaches. Improvisational performance, then, represents an important life skill, one that balances problem-solving and creative expression, invites us to reimagine ourselves and the world, and allows participants to examine a problem from multiple perspectives.

Educators have for too long treated role play as a means to an end—a fun way to introduce other kinds of content—yet we argue that role-play skills may be valuable in their own right and are increasingly central to the way adult institutions function. Performance brings with it capacities to understand problems from multiple viewpoints, to assimilate information, to exert mastery over core cultural materials, and to improvise in response to a changing environment. As with play and simulation, performance places a new stress on learning processes—on how we learn more than what we learn. These learning processes are likely to sustain growth and learning well beyond the school years.

What Might Be Done

Performance enters into education when students are asked to adopt fictive identities and think through scenarios from their perspective. These identities may be assumed within the physical world or the virtual world.

- The Model United Nations, a well-established educational project, brings together students from many different schools, each representing delegations from different member countries. Over the course of a weekend, participants work through current debates in foreign policy and simulate the actual procedures and policies of the international organization. Students prepare for the Model United Nations by doing library research, listening to lectures, and participating in group discussions, and they return from the event to share what they learned with other classmates through presentations and written reports.

- The Savannah Project, created by researchers at the University of Bristol, encourages children to play the parts of lions stalking their prey in physical spaces, such as the school playground, but reading them through fictional data provided on handheld devices. This approach encourages students to master the complex ecosystem of the veldt from the inside out—learning the conditions that impinge on the lion's chances of survival and the skills they need to feed on other local wildlife.

- Teachers in a range of subjects can deploy what Shaffer (2005) calls "epistemic games." In an epistemic game, the game world is designed to simulate the social context of a profession (say, urban planning), and by working through realistic but simulated problems, players learn the ways of acting, interacting, and interpreting that are necessary for participating in the professional community. In effect, rather than memorizing facts or formulas, through performances of being an urban planner, lawyer, doctor, engineer, carpenter, historian, teacher, or physicist the player learns the particular ways of thinking of these professions.

- Medieval Space, a MySpace clone created by teachers at Byrd Middle school, asked students to create online profiles for the various historical figures studied in their classes. Rather than seeing figures such as Richard III, Henry VI, and Queen Elizabeth as distinct characters, students explored the complex social relationships between them by imagining how they might have interacted if they had online spaces in the fifteenth century. For example, students were asked to imagine what their character's current song might be, with as 2Pac's "Only God Can Judge Me Now" listed for Richard III. See http://www.incsub.org/wpmu/bionicteacher/?p=142 for more info.