Economic Impact of Digital Media:
Growing Nuance, Critique, and Direction for Education Research
Abstract
Digitization by computers, like steam power and internal combustion, is widely recognized as a pervasive, disruptive engine powering new ways of living and affecting all aspects of economic life. Research on its economic impact cannot be entirely disentangled from powerful cultural stories connect technological, educational, and economic progress. As cracks appear in the narratives of constant progress through technology, science, civilization, and economic prosperity, research on the economic impact of digital media develops nuance. This review of literature examines a wide range of perspectives on the economic impact of digital media as a basis for suggesting areas of further research and implications for education, civic, engagement, and policy.

Keywords: Knowledge economy, digital divide, information literacy, triple crunch, literacy myth, enclosure, ICT, digital media, digitization, critical literacy, Internet policy, neoliberalism, New Economy
Introduction
The breadth and depth of research on the economics of digital media point to a view shared across academic disciplines and governments that the production of machine-readable information is affecting how humans provide for their needs (Dobson & Willinsky, 2009); in other words, digital media is affecting the economy. “The economy” is often an opaque package of ideology, often exchanged without acknowledgement of which economy, whose economy, what parts matter, and why. The combination of ubiquity and lack of clarity in lay political and educational discourse about the economy complicates efforts to conduct and share research. Equally challenging is researching and discussing the set of materials, texts, and social practices that make up digital media. Assessing the relation between economies and digital media(s) often involves unpacking cultural myths or overarching stories linking the two.

Digitization by computers, like steam power and internal combustion, is widely recognized as a pervasive, disruptive engine powering new ways of living (Carlsson, 2004; McQuivey, 2013). Economic growth and, therefore, digital media access are routinely equated with national or global stability (e.g., European Commission, 2014; Yu, 2002). Economic prosperity is often absolutely linked to digital literacy (e.g., Graff, 1979, 2011). These master narratives answer research questions so forcefully that it can be difficult to imagine disconfirmation. However, as cracks appear in the narratives of constant progress through technology, science, civilization, and economic prosperity, research on the economic impact of digital media develops nuance. Under emerging conditions of economic research across numerous academic fields, poverty is less likely to be viewed as a condition of privation to be alleviated by the actions of fiscally and politically powerful groups. Digital media is less likely to be viewed as a static set of tools to be ‘rolled out’ for others to access. Large-scale formal governing bodies are less likely to be viewed as unproblematic benefactors of struggling villages, regions, and countries.

Powerful stories, old and new, continue to inform research and discussion of the economic impact of digital media. These stories express belief in or suspicion of intrinsic benefits of market economics, global commerce, and privatization. They consequently shape digital media education, policy, and research. As a result, readers approaching the topic of digital media and the economy are likely to encounter a fragmented array of studies verifying and contesting causal links between digital media phenomena and economic life (e.g., Atkinson & McKay, 2007; Brynjolfsson & McAfee, 2012). Projects offer heterogeneous policy recommendations and reports for governments, corporations, and development and educational organizations, whose fragmented missions call for concerted action to steer economic development through digital media education, access, and use.

In order to review the literature comprehensively, digital media is defined broadly to encompass broadband networks, the physically wired infrastructure that supports them, information and communication technologies (henceforth, ICTs) that they support, and the merging of social and economic life into these digital spaces.

What is a Succinct Overview of the Research?
Economic Impact of Digital Media in the New Economy

Prior to the Great Recession, research across multiple fields pointed to an emerging “New Economy” explicitly driven by machine-readable information as a
“General Purpose Technology” comparable to steam power and the internal combustion engine (Carlsson, 2004). Two studies of the decade prior to the economic downturn found Broadband infrastructure and ICTs to affect national economic growth in Europe (Czernich, Falck, Kretschmer, & Woessmann, 2011; Vu, 2011). The New Economy was shown to depend fundamentally on digital media for increasing productivity, making markets more efficient, improving the quality of goods and services, and creating new or innovative products (Atkinson & McKay, 2007). This influence was “not likely to run out of gas anytime soon and should power robust growth [globally].” These studies before and after the Great Recession provided empirical backing for the “growth” imperative seemingly intrinsic to the Internet and cellular phone technology. In many cases, research explicitly claimed that the “lion’s share” of economic growth belonged to digital media (p. 1).

After an initial boom and bust of dot-com industry had passed, yet before the financial crises of the mid-2000s, digital media’s true believers trumpeted the narrative linking digital media with economic growth (Litan and Rivlin, 2001). Research teams carried these growth imperatives into international development settings (Galperin & Rojas, 2013), where technological and market determinism would fix a temporary digital, and therefore economic, divide (Guillen & Suarez, 2005). Skeptics questioned the effect of the Internet on productivity (Gordon, 2000) or connected the dot-com bubble with exaggerated projections regarding the Internet’s economic impact (Gadrey 2003). Many more studies, however, strongly correlated changes in Gross Domestic Product with a region or country’s degree of access to broadband technology or Internet Communication Tools in order to argue that they drive growth (Chambers, 2013).

The widespread view that digital media was linked fundamentally with economic prosperity spurred attention to the problem of a digital divide reinforcing traditional economic access issues. Digital divides were defined as unequal access to information and communication technologies based on wealth (Mun-Cho & Jong-Kil, 2001). Research on access to digital media in rural North America and Europe, and in numerous regions outside comparatively wealthy cities and countries worldwide was predicated on the assumption that lack of access to digital media was a serious threat to economic and political security, while access to digital media represented an opportunity to “leapfrog” historical developmental obstacles (Dunn, 2013; Faye, 2000). The digital divide has become an important part of research on the economic impact of digital media: It has developed over time, and it demonstrates characteristics of combining factors, zooming in, and critically reflecting found in research not geared toward the digital divide in particular.

Questioning simple causal connections between economic growth and digital media on the basis on historical productivity paradoxes, technology-rich environments have not always demonstrated increased output (Eliasson, Johansson, & Taymaz, 2004; Solow, 1987). Such studies suggest a category of research on the economics of digital media in which scholars have argued that realizing economic opportunities digitally depends upon organization of multiple factors, not just the existence of or access to digital tools. Chambers (2013), for instance, questions the ability to isolate ICTs’ impact in the presence of other major factors like recession and war, plus rapid technological changes make longitudinal studies difficult. He notes a shift in research from measuring access to measuring particular economic effects of ICTs in specific developing regions.
that impede simple comparisons. Among the most important additional factors that may have been overlooked in early projections of the Internet’s economic power are social practices and cultural norms that shape how Internet Communication Tools are used.

Another category of research follows in the wake of the global economic downturn beginning in 2007, embracing a mixed picture of economic effects of digital media. Zooming in on particular economic effects allows research to account for economic recession and constriction of markets whose across-the-board growth had previously been used to point up the advantages of digitization before 2007. In this category, the recognition remains that economies are more flexible and adaptable when networked digitally, yet growth claims are more modest (Kim, Park, Kim, & Hwang, 2013). Brynjolfsson & McAfee’s report (2012) argued that digital media drives growth despite many signs of economic calamity such as collapse of job sectors and persistent unemployment. Destruction in the New Economy, they argued, makes room for innovative combinations, new products, and new markets, but research increasingly acknowledges that economic benefits may be fragmented:

Technological progress does not automatically benefit everyone in a society. In particular, incomes have become more uneven, as have employment opportunities. . . . The problem is that our skills and institutions have not kept up with the rapid changes in technology (p. 2).

While grand narratives of technology-driven economic growth are still being produced that tout the ‘natural’ connection between digital media and the economy, a great deal of research has zoomed in to see particular effects.

Research on the economic impact of digital media is combining digital media with other factors to understand a more complex economic significance, on one hand. On the other, zooming in on smaller scale economic questions, much research seeks a less coherent, but more accurate assessment of digital media’s impact. A third major research development involves reflecting critically on the epistemological, political, and social consequences of digital media. Thus in addition to combining digital media with other factors and zooming in for finer-grained analysis of economic effects, critically reflective research adds further nuance to the economic impact once attributed to digital media by noting the way economic research on literacy, media, and digital access plays into powerful cultural myths. These myths, such research argues, affect global, national, and regional media and educational policies, and they underwrite the massive financial commitments driving universal broadband access and literacy campaigns. Decentering literacy in relation to economics may be essential for making appropriate recommendations for education and digital media policy.

Combining. As early as 1993, studies combined digital media with changing business choices in order to measure an impact (Clemons, Reddi, & Rowe, 1993). But more recent research suggests that oscillations between social and material digital worlds have inadequately characterized the “blurred realities” of life in digital worlds. Moving beyond binaries requires recognition of the complex existence of digital media in the economy (Ettlinger, 2008).

The human and economic networking potential of digital media are closely intertwined, and research on the combined economic and political effects of digitization has shown that authoritarian regimes only withstand the economic and political pressure of digital networks at great cost (Kalathil & Boas, 2003). Related research examined
governments’ ability to filter available entertainment and found that perceptions of domestic versus foreign entertainment quality played a major role (Cheng, Feng, Koehler, & Marston, 2010). A related study drew similar conclusions by comparatively examining legal and illegal digital content downloading occurring during and after a corporation pulled popular content (Danaher, Danasobhon, Smith, & Telang, 2010). Other studies have examined the intersection of digital media, intellectual property, and government intervention: Chambers (2013) correlated vibrant intellectual property rights policy in European countries with large scale economic growth; MacQueen (2007) sought explicitly to balance the goals of economic growth with copyright protection; Van den Bulck (2014) addressed the pressure on governments to develop new regulatory frameworks to respond to rapidly changing industrial boundaries, such as between media producers and media outlets.

Research on the regulatory responsibilities of government foreshadow new possibilities for “completely digital entrepreneurship” (Asghari & Gedeon, 2010), which takes advantage of protected markets and reduces or eliminates overhead costs. The New Economy thus involves integrating the changing rules of business with responsive government policies (Oh & Larson, 2013).

Digital media spending, on the other hand represents a significant corruption problem. The increase in pork-barrel or preferential government spending on digital media projects prompted research on the messy combination of digital media expansion and undemocratic political processes (Thierer, Crews, & Pearson, 2002). In contrast to the free market goals of the former research project, Bennett & Segerberg (2011) examined how the digital forces enabling globalization also afforded forms of democratic protest and collective action.

Zooming in. Researchers zoom in past grand narratives of economic growth to test digital media’s impact more accurately. The degree of mobile phone penetration was correlated with increased Gross Domestic Product (Gruber & Koutroumpis, 2011). Convergence of media devices (Alam & Prasad, 2007), convergence of databases (Janowicz & Hitzler, 2012), cloud computing (Chambers 2013) have all been evaluated discretely in terms of their economic impact.

Zysman (2010) connected the growth digital media with service sector expansion in US and global job markets. Much research has clustered around music, film, and entertainment industries as areas susceptible to massive change through digitization. Some have questioned whether digitization and reduced opportunity costs in producing and distributing films will loosen Hollywood’s hold on the film industry (De Vinck & Lindmark, 2014; Zhu, 2001). Similar shifts in power were examined in the music industry from large US-based labels to digital community networks (Hughes & Lang, 2003). By contrast, Lee (2009) called into question the liberating possibilities of digital media in view of the complex and still-powerful industrial dynamics too easily overlooked by studies overemphasizing democratizing possibilities of digital media. Other research in this vein has recognized local synergy between university communities and arts and culture clusters (Breznitz & Noonan, 2013), where digital media is argued to play a central role in multiplying the economic impact of local resources. Similarly Morgan (2013) showed that creative media industries could have regionally significant economic impact despite their longstanding marginalization prior to the emergence of a new digital economy.
Possibilities for economic growth through new and reduced-cost outlets for digital cultural content produce economic challenges for existing outlets (Maggiolino, Montagnini, & Nuccio, 2014) in the transition away from brick-and-mortar shops (Waelbroeck, 2013). Booksellers online offer advantages for customers that translate to increased economic activity (Brynjolfsson, Hu, & Smith 2003), and consumer-generated content is integrated into their business models (Ghose, 2011). The business developing around the distribution of digital content vary widely, yet the configurations and ownership of digital and non-digital content providers, such as with ebook and print text markets, themselves have measurable economic impact (Jiang & Katsamakas, 2010). At the same time, retailers’ internal marketing strategies vary in terms of the way they make use of available digital information about their intended or actual clients (Ziliani & Bellini, 2003).

Critically reflecting. Historians Graff (1979, 2010, 2011) and Trigger (1976) have discussed ahistorical yet culturally important post-Enlightenment liberal social theories that tie literacy and schooling to socioeconomic development. Graff’s interrogation of “literacy myths” continues to inform contemporary researchers questioning the autonomous relationship between techno-literacy and sustained economic development. Trigger (1976) used evidence from prehistoric civilizations to argue that literacy is not required to support highly complex economies, even if literacy developed to support complex economies in the Middle East. Katz & Stern (2008) argue that growth promises tied to education in the New Economy ring hollow, providing many medium-low wage jobs requiring no college degree, outsourcing many jobs, and rewarding a tiny percentage of college graduates who reap outsized rewards.

Katz & Stern’s (2008) argument about college education touches on the changing value of specialized knowledge and knowledge in general in the “New Economy.” Brynjolfsson & McAfee (2012) connect the economic impact of digital media with the educational need to focus on “soft skills” like leadership, team building, and creative thinking. The Partnership for 21st Century Skills (2011) represents core academic knowledge as a “base” for “21st century skills” implementation.” The incorporation of educational recommendations manifests the shift in emphasis away from efficiency and cost saving as the main advantages to networked computing and communication. Researchers increasingly recognized the potential of digital media to affect every aspect of economic life, with a “multiplier effect” (Katz, 2010). Carlsson (2004), Geyer-Schulz, Neumann, Heitmann, & Stroborn (2004), and Maull & Mulligan (2014) locate the salient feature of digital media in its capacity to convert of information to knowledge. The economic and sociopolitical consequences of datafication or “metadata” are only beginning to be realized and studied.

Chambers (2013) claims that entire functions of society (e.g., education, health, security, privacy) are being rethought as they are being translated for exchange through digital media. Accompanying this translation is a shift toward “digital epistemologies” (Lankshear, 2007), where sweeping changes in individual and community life through digital media affects what counts as knowledge. The New Economy represents a structural shift toward “networked information” (Benkler, 2006, p. 3). Because the use of digital infrastructure for networks has been enclosed economically, laws of supply and demand apply to this process of translation. To understand the human consequences of an economic metric for digitizing information electronically, Foray & Lundvall (2009)
argued that the economic importance of digitizing information disrupts traditional boundaries between codified and tacit knowledge, with consequences for the social organization of institutions. Zysman, et al (2010) echoed these claims and added that digital media affects how economic value is created: “When activities are formalized and codified, they become computable. Processes with clearly defined rules for their execution can be unbundled, recombined, and automated” (p. 8).

McChesney (1999) argued that, when it comes to the relation between economics and digital media, “the market has assumed mythological status,” where “all must pledge allegiance” (p. 137). In an age in which knowledge must have market value to be digitized, Carrette (2007) warned that, despite decades of critical inquiry into the role of media in shaping human thought and behavior, markets for digitized information are increasingly controlling human thought. Gee (2007) agrees, attributing the view of digital media to neo-liberal myths that lasting good is only produced by markets. “Only markets ensure quality,” says Gee, to explain a relation among economics, digital media, and human knowledge. Knowledge only counts when it has survived the test of the commodification of knowledge digitally.

Critically reflective research notes the importance of powerful cultural myths at work when people make sense of changes in communication, economy, and knowledge. Selfe (1999) saw the promise of technology as a savior as a uniquely American phenomenon, now being exported globally. Warnick (2001) characterized this view as a form of economic manifest destiny; Berland (2000) found techno-evolutionism at work in the view that technology was a key factor in realizing human potential for freedom, democracy, culture, intelligence, and progress (p. 243). *The new work order* (Gee, Hull, & Lankshear, 1996) argues that changes ascribed to the new economy parrot neoliberal myths of market driven progress, which actually spell increased inequality and oppression for the world’s workers despite promises of great work satisfaction, autonomy, and teamwork. Other social criticisms of the rise of digital media (Carrington & Luke, 1997; Luke, 2008) draw on complex concepts of class, lifestyle, and capital found in the work of Bourdieu (1993). Brandt & Clinton (2002) argued that the notion of using literacy to manipulate one’s environment overlooks a crucial economic feature of literacy, that using literacy means being used by literacy as well for potentially economic purposes beyond the view of researchers and participants. Similarly, court decisions and other structural factors play a role in the preservation of cultural myths about literacy and media use (Prendergast, 2009). Critical media literacy has the goal of exposing economic underpinnings of digital media. Cultural messages about economic life and literacy are important (Luke, Iyer, Doherty, 2011). One study noted the effects of neocolonial literacy education in parts of southeast Asia, where “The dominant characterization of the landless peasantry in Bangladesh and elsewhere in Asia is of illiteracy” (Maddox, 2001, p. 137). Another criticized the literacy education agendas sponsored by the World Bank and UNESCO as neocolonial in nature, that is, positioning the less developed regions for a new wave of economic exploitation through digital media.

Such critiques pave the way for new ways of looking at the economic significance of digital media. Ethnographic perspectives of digital media experiences are useful in considering more nuanced economic situations (Coleman, 2010). Case studies
undermined the link between economic development and digital media use among low literacy adult workers in Australia (Black & Yasukawa, 2011). As powerful cultural stories about markets, technology, literacy, and continue to be positioned as reasons to embrace digital media’s positive economic effects on human life, more and more studies are published questioning the links and the stories that contextualize them. At the same time, the World Bank, United Nations Educational, Scientific and Cultural Organization, and transnational development organizations profit fantastically from “over-promising” (Heeks, 2010) and “overselling” (Kenny, 2001) digital media’s or other utility infrastructure potential for economic impact. Still, research on economic impact of digital media continues to draw quite explicitly on problematic myths. The Deputy Secretary-General of the UN made literacy, and even “informatics” prerequisites for “a healthy, just, and prosperous world,” (Frechette, 2003 cited in Rutsch, 2003, p. n.p.; Frechette, 1999). The urgency of the “Literacy Decade” represents the intersection of multiple narratives of progress outlined above, but it focuses on the question of a digital divide ostensibly intensifying inequalities between former colonial powers of the Global North, comprising Europe, North America, and parts of Asia, and the formerly colonized regions of the Global South, comprising wealthy regions in Asia, Africa, and South America.

**Digital Divide**

Research on the Digital Divide flows out of concerns that the ostensibly vast benefits of the New Economy will not be realized apart from access to the Internet. Recent research has therefore either forwarded or confronted the philosophy and policy reinforcing the view that digital media hold a key to development in rural areas of the Global North and both rural and urban regions in the Global South. The World Bank funded research that purported to isolate access as the controlling factor in economic growth in poor countries (Dasgupta, Lall, & Wheeler, 2001), in spite of numerous studies arguing for an approach to increasing access that accounts for social practices shaping use (Warschauer, 2002). Compaine (2000) argued that decreasing cost of use and increasing ease of use would further isolate access alone as the key determiner of economic development through digital media. Bolt & Crawford (2000) neatly equated the economic have-nots with information have-nots. These research projects bear the marks of a global economy flexing its muscles, yet, even after the economic downturn of 2007, UNESCO-backed research by Katz (2010) still assumed economic growth as the norm despite numerous indicators otherwise. Katz’ research supported the view that systematic, that is, top-down, internet access policy was a key global development priority. Global broadband access was recommended as a core step in alleviating the inequalities of the digital divide (Williams, 2013). A study reaching from the end of the dot-com crisis to before the economic downturn correlated broadband access with a broad set of economic growth factors (Lehr, 2005). Similarly, Mainardi (2013) connected Internet Communication Tools, “and specifically digitization,” with the assumed need for countries to effectively compete as economic engines: Digital media is a “fundamental driver of economic growth” that holds the key to “the potential development and maintenance of absolute advantage” (p. vii). Despite the nationalistic zeal inherent in this research funded by Booz & Company, Mainardi’s report identifies specific economic impact of digital media despite “continued sluggishness” of “financial crisis” (p. vii). Finally, the report’s top down approach to development frames
governments as chiefly responsible for building digital infrastructure, since increased
digitization beyond basic broadband access produces increasing economic returns on
digital infrastructure investment. This top-down view echoes in the pursuit of an
inclusive information society (Guerrieri, Bentivegna, & Elgar, 2011).

Digital divide research does not unanimously endorse the top down approach to
responding to the digital divide. Projects designed to increase access alone have been
critiqued for their inefficiency. Heeks (2010) characterized projects designed to boost
economies through networking centers as “heavy overpromising followed by noticeable
under-delivery” (p. 629). One review of research (Chambers, 2013) found that economic
growth in many regions that had progressed along the digitization spectrum had
stagnated or even retreated. Recognizing the complexities of economic and cultural life in
the Global South and in rural areas of the Global North has resulted, as it did with
economic research not geared toward the digital divide, in projects that combine digital
media with other factors and zoom in on more discrete economic effects.

Combining. Mansell (2001) found institutional foundations to be important
coordinating factors for predicting growth from ICT use through uptake of digital media
in business. That study argued that the notion of leapfrogging, by which ICTs enable
overcoming developmental obstacles, must move beyond one-dimensional views of
access to technology. The same author argued in a later study that ICTs had to be
deployed in ways that afforded people making authentic choices about their own lives.
Access alone is not enough (Selwyn, 2004). In spite of massive fiscal and political
support for global broadband initiatives, a study of a rural broadband access program
showed no economic growth (LaRose, Strover, Gregg, & Straubhaar, 2011). Far from
denying the economic impact of digital media, research in this vein echoes the view that
ICTs alone cannot improve peoples’ lives; the use of ICTs needs to occur within
broader strategies that are tailored to make the most use of these tools and
techniques in order to reap their potential benefits for human development
(Hamel, 2010, p. 59).

Responding to critiques of top-down approaches, much research on the digital divide has
oriented on participatory design and implementation of ICTs. When “conceived and
accommodated in locally meaningful ways,” argued Maive & McGrath (2010), ICTs
“can provide a platform for advancing development agendas in ways that are sustainable
in the longer term” (p.2). Perhaps the most important combining effort in this vein of
research is the recognition that the notion of a digital divide as distinct from issues of
poverty is a fallacy. A study by Blake & Quiros (2012) following reviews of digital
divide research (van Dijk, 2006; Wersch, 2009) attempted to address numerous
reductionist tendencies both in looking at economic impact of digital media and
discussing the nature of poverty.

Using a complex view of poverty (Alkire & Foster, 2009) and more grassroots
action approach, Blake & Quiros (2012) recommend a recasting poverty in terms of
capability goals rather than privation, thereby supporting locally relevant strategies for
integrated digital media. They argued that community participation was essential to the
design of effective responses to the digital divide, that “efforts aimed at bridging the
digital divide therefore need to be refocused as strategies to address the multiple divides
within which poverty has been fostered” (p. 8). Research in this vein invests local
communities with agency for digital innovation around their own needs. Contrasting with
the agenda of developing universal Internet and broadband policies, von Braun (2010) argues that the perceptions of the target population, rather than the supposed power of the new tools, are of paramount importance if development through digital media is to occur. Language and gender play a role as well (O’Byrne, 2011; Looker & Thiessen, 2003; Bryson, Petrina, Braundy, & de Castell, 2003), as does race, and class (Mossberger, Tolbert, & Stansbury, 2003).

Combining environmental sustainability and economic issues has resulted in critical comparisons of environmental with economic impact (Cox, May, Kroder, Franklin (2010). Other studies of environmental economic impact include assessment of “green broadband” (Valley Vision, 2012), energy consumption (Alonso, Hamdoun, Mangeni, & Dwivedi, 2013). At the same time, ICTs are enabling intensive environmental measurement, too, with complicated economic results, where economic growth depends upon public response to environmental sustainability imperatives regarding city water quality (Sitzenfrei & Rauch (2011), watersheds (Mishra, 2011), and urban sprawl (Shalaby, Ali, & Gad, 2012). These studies concur on the need for “technology that is suitable for the environmental, cultural and economic conditions in which the technology is intended to be used” (van Reijswoud, 2009, p.3).

Many concerned with a digital divide view education as a natural factor to be combined with economic growth (Borovoy & Cronin, 2011/2014). The combination of economic change and digital media has resulted in numerous recommendations for major educational changes to accommodate new digital literacies (Leu, 2000). Complex changes in the New Economy are said to underwrite a “transdisciplinary” approach to education (Lélé & Norgaard, 2005; Mollinga, 2010) that values academic specializations as it moves among them and to require “transliteracy,” or the ability to respect norms of multiple communication environments (Selfe, 1999). At the same time, digital media is also supporting the creation of digital content for schools and digital tools for writing assessment, and educational technology is increasingly recognized as a site of struggle as academic labor is valued through its technological availability, distribution, and marketability (Hall, 2013). An emerging concern merges environmental stability with education. Gomes (2011) made the connection: “If education and development make an irreducible binomial and that development must be sustainable, then we need an education for sustainability” (p. 205).

Zooming in. Challenges to top-down, access-oriented, government-sponsored digital media development projects come from research that zooms in on specific economic effects. One critique rests on the notion that economic projection are made based on what might be possible through digital media when research does not strongly support the idea that economically beneficial activities will form a significant portion of internet use. One study found that digital media available in the home is a vehicle for reaching a region’s elite, with poorer consumers’ behaviors remaining largely unchanged (Reich, 1992)). Kenny (2011) criticizes the overzealous aims of UNESCO’s Broadband Commission for Digital Development and their policy brief Broadband inclusion for all. Kenny skeptically cited universalist claims in the report: “international estimates suggest that for every 10 per cent increase in broadband penetration we can expect an average of 1.3 per cent additional growth in national gross domestic product” (cited in Kenny, 2011, p. 1). The critique pointed to numerous areas in which claims linking digital media access
to economic growth rested on dubious assumptions, and that the actual margins of growth attributable to digital media rollout are very small.

In the report, partially titled “Overselling broadband,” Kenny reveals a suspicion the large scale of the recommended projects will disproportionately benefit those who will handle the development contracts, rather than a country’s taxpayers. The author concludes by zooming in on numerous finer-grained approaches to supporting economic development through broadband rollout:

This is not to say that nothing can or should be done by policymakers to speed broadband rollout in the developing world. McKinsey [& Co. (2009)] estimates that a combination of adding to available spectrum for mobile broadband, encouraging infrastructure- and spectrum-sharing, reducing coverage obligation, reducing competition, and eliminating spectrum fees could reduce wireless broadband costs by as much as 75 percent. If one is less sanguine about the impact of reduced competition and prefer to see spectrum rights auctioned rather than given away, the impact of the remaining measures could still surpass a 50 percent cost reduction. This suggests there are powerful tools that governments could use prior to diverting scarce revenues towards broadband subsidies.

Zooming in on the digital divide led to inquiry into the significance of digital money in Uruguay (Cassoni & Ramada, 2012). Digitized geographies in Europe are consistently presented as domains of economic growth and impact (Mossberger, Tolbert, & Franco, 2012; Misuraca & Broster, 2010). Technological infrastructure is often isolated and its effects studied on particular regions: US states (Lloyd; Hohlfield, 2008), US rural versus urban areas (Whitacre, Gallardo, & Strover (2014), and sub-regions of Africa (Fuchs & Horak, 2006). Research also zooms in on the technological devices themselves. Mobile phones in India (Moz & Tanz) were shown to benefit higher status groups most and marginalized groups least. Varian (2006) saw considerable potential for emerging low cost laptopn manufacturing. Brazil’s low cost laptop computer program was evaluated (Amiel, 2006, less favorably by Warschauer, 2003).

Critically reflective. The notion that rural regions in the Global North and areas in the Global South can overcome development obstacles through acquisition and use of digital media has been called into questions from a range of perspectives for its many assumptions about development, literacy, technology, and globalization (Fuchs & Horak, 2006). Most obvious is the ahistorical assumption that ICT and broadband development funded by outside investors might differ in their economic intent and effect from well-documented exploitive colonial and neocolonial policies. A study conducted in Egypt cautioned against an ahistorical reading of changes in global communication and that digital divide research risked recapitulating the great literacy divide (Warschauer (2002), in which modes of communication were equated with the intelligence and civilization. Providing similar historical context for research in the Global South, others have argued that the digital divide masks exploitive economic imperatives driving outside investment in digital media. The Digital slavery, it is argued, results from bridging the digital divide, where

the claim that our personal data and electronic interactions are owned by others is tantamount to accepting that we, as digital beings, can be owned by others. . . .

With ownership comes the right to use, trade and dispose. Existing legislation such as data protection is concerned with the legitimate use of data items. It does
Further developing the historical critique, Ogunsola (2005) noted that leapfrogging the industrial stage of development is not a straightforward move for most countries because past economic struggles have resulted in “tighter imperialist control of the continent” by lender countries, the International Monetary Fund, and the World Bank (n.p.).

Alzouma (2005) argued that advocates for development in the Global South assume that help must come from outside, and that ICT and broadband policies magically invest technology with power to solve entrenched human problems. The digital divide is itself a problem not likely to be eliminated, even if widespread access occurs (Lopez-Sintas, Filimon, & Garcia-Alvarez, 2012), confirming findings in a study of school and home ICT use nearly a decade before (Sunderland-Smith, Snyder, & Angus, 2003). Researchers have also questioned the environmental consequences of e-waste in the Global South, which already receives much of the world’s electronic waste (Bjorn, Vanden Eynde, Viaene 2013).

What are the Current Issues in the Field Raised by These Studies?
Educational policy is being affected globally by recognition that digital media and economic growth are entangled, if not always causally linked in an absolute sense. Research intended to inform corporate, industrial, economic, and educational speaks with many voices, without clear consensus. A lack of consensus does not mean a lack of important issues, however. On the contrary, research on economic impact in general and the divide in particular raises an important collage of issues, which provide an increasingly variegated or fragmented backdrop for action. That backdrop was once monochromatic: ICTs and broadband boost GDP, suggest the need to rethink education around watershed changes in human interaction, and demand heavy investment in less-development regions around the world. In the monochrome, social practices mattered less than material technological access, income alone defined poverty, and technology was environmentally clean and politically neutral. The evolution of the digital divide debate, the effects of the economic downturn on attitudes toward global economic progress, increasing attention to global climate change, as well as persistent critical reflections on cultural myths of technology and literacy have given researchers a far more diverse palette. Irreconcilable views among large-scale global anti-poverty groups (Denny, 2011) illustrate how colors may clash.

There is widespread agreement, however, that divisions between digital content, digital infrastructure, and digital practices are not easy to maintain. Digital media are widely regarded as critical elements of 21st century economic growth across scales and stakeholder groups, and the existence of a meaningful digital divide is widely confirmed, but current efforts seek more nuanced approaches that attend to digital media practices—the combination of digital media with cultural, material, and economically oriented practices. Additionally, studies have combined economic growth goals with questions of environmental sustainability in the recognition that limited resources, changing living conditions, and reliance on nonrenewable resources cannot be separated ultimately from digital media, despite the myth of clean technology. Studies have raised similar concerns about the role of digital in globalization, and the need to balance complex national and
international interests with equally complex local and regional situations. The balance imperative stems from efforts to place the trendy in context.

The issue of balance and responding to rapid technological change is particularly important for literacy education and research. On one hand, notions of education and economic access as fundamental rights have placed schools on the education technology bandwagon. The technology imperative flows from the seeming urgency of technological and economic change: Schools must act as a stopgap bridge across the digital divide; teachers can hardly integrate enough current technology; and technology is well suited to schooling, because it so efficiently packages and distributes information, because students like learning with new technology, or because its use trains students entering the global workforce. Economic research on digital media potentially offers important balance to the view that schools must bridge the digital divide through digital literacy, as Brandt & Clinton (2002) argued, since the user-friendliness of digital media is, illusory. Digital media, via literacy, uses us. Other economic research on digital copyright, piracy, and intellectual property raises similar concerns about the elision of technology access with education: Ownership of digital media and the ontological status of digitized personal information does not square well with human rights arguments about digital media access or the school as its conduit.

On the other hand, documentation of specific, varied, and conditional economic impact of digital media is important in literacy research, where monochromatic notions of economic change have limited engagement with the particularities of growth sectors, malleable ICTs, economic meaning-making, and environmental impact such e-waste. These issues present significant opportunities to integrate economic particularities, questions, and problems where only grand narratives existed before. Among the most important issues raised by current research is confirmation of existing concerns about automation, outsourcing, and workforce development. The review of literature reflects a shift from nationally and internationally scaled economic impact studies (even though such studies continue to be produced) to more narrowly defined industrial, local, and personal economic effects of digital media. As the picture of economic impact of digitization comes to life, critical reflection upon techno-evolutionary myths continues to be crucial for literacy research. Educational policies conceived on the basis of the older pre-Recession grand narratives can be revised to support local concerns and practices where they have been ignored or effaced in monochromatic narratives of globalization and national competitiveness.

At the same time, it must be recognized that the issues to which literacy education and research should respond are themselves fragmented. The digital divide, for instance, is hailed as an opportunity for reducing inequality through leapfrogging the glacial process of industrialization in the Global South, yet the too comfortable relationship of development corporations and World Bank or International Monetary Fund confirm fears that the digital divide really refers to neocolonial economic opportunity to expand markets in capitalism’s last gasps as human, market, and environmental resources are exhausted. The issue of digital literacy as a set of practices embedded in the cultural life of particular groups (Lankshear, 2007) has been challenged similarly for its naïveté about how global economic forces are exploiting educational imperatives for profit. This issue further raises the questions about 21st century work, knowledge work, and the new work order. Research on digital media’s economic impact has not produced a coherent picture...
of the 21st century worker, but has instead raised questions about “high” and “low” economic roads that preserve familiar class divisions, albeit overlaid with new literacies, new jobs, and new means of building elite social networks. The issue of workforce development in response to digitally mediated changes in the New Economy depends absolutely on economic impact research, and current research in the wake of the Great Recession is suggesting a more varied picture of digitized work.

Research suggests that monochromatic picture of economic growth driven by digital media depend on myths of autonomous or exogenous effects of digital literacy. The gaps in the logic that literacy has positive economic consequences are filled in (or papered over) by cultural stories linking high-status technologies with social status, progress, morality, and more. Research on the economic impact of digital media, while diverging in terms of critical and uncritical orientations toward these stories, point together to the importance of underlying literacy myths in shaping local, regional, national, and global policy. Graff (2011) points out that the core issue is not the expulsion of the stories so commonly told about literacy and economic development, but a need to gain some control over them and direct them.

The idea of using cultural myths about literacy strategically raises the important issue that little effort has been given to understanding economic factors affecting literacy outside the work of critical theorists of literacy (e.g., Gee, Hull, & Schultz, 2007; McLaren, 1998, Rose, 2010). Even with these broad critiques, knowledge of the relation between real schooling practices and local economic history is “pitifully thin” (Rose, 2014, para. 4).

Separating economic from literacy and cognition issues has been an explicit goal of a branch of literacy studies most apt to tackle the problem of linking literacy and economic life beyond the grand myths (see Scribner & Cole, 1981, introduction). Literature published in media studies, by contrast, has maintained a robust critical agenda linking economic goals with digital tools and literacy (. So now, the research points up the issue of synchronizing the government, business, and philanthropic economic imperatives with local economic and educational settings, of working across scales, in other words. So far, the synchronization process has been trapped by the politics and economics of scale that produced it: National and transnational governing bodies, in partnership with large national and transnational corporations, have sought to reform educational practices to produce a workforce for the new millennium. But understandings of the nature of literacies constrained by national and transnational scales decreasingly answer to issues raised in the literature. One important feature of this synchronization and scale problem is the failure to reconcile reform goals internally. Indeed, Au (2011) argued that reforms in assessment, driven by digital economies of scale and enabling new forms and levels of teacher, student, and curriculum surveillance, cannot be reconciled with curricular reform goals developed around the notion of disciplinary literacy practices and problem solving. In this study, the economic concept of alienation from work has been realized in the context of the educational reform for the digital age.

Alienation, poverty, and environmental consciousness are issues raised in the literature that demand reconceptualization for designing instruction and educational research. The digital divide debate presses the issue that definitions of poverty have implications for the kinds of economic activity and growth that can be projected upon a research site. Theories of poverty based on capabilities, agency, and freedom rather than
“lack” have significant advantages in terms of predicting the way digital technologies may affect lived conditions. Although no consensus exists, digital divide research raises the issue of transdisciplinary approaches to questions of digital media development among underrepresented populations, which may significantly shape kinds of positions on digital literacy and technology integration in schools. A potential explosive conclusion from this research is that teachers, administrators, and educational researchers, as important stakeholders in the digital divide discussion, should or could cultivate transdisciplinary knowledge of digital media. Such knowledge would mean a holistic approach to questions of poverty, technology, literacy, and economics informed and clarified by disciplinary concepts (Mollinga, 2010).

The idea that education professionals should approach the digital divide or other questions of digital media and the economy holistically is an obviously tall order, yet it underlines a persistent problem raised in the literature, that a mythical relationship between economy and digital media has stunted or stood in the way of applied problem-solving about the needs of teaching practitioners, studies, and communities (Brown & Grant, 2010). But this issue applies to educational research as well, where “overly utopian and zealous belief in the role that ICTs play in development” is accompanied by a “lack of linkage” between ICT and poverty alleviation (Blake & Quiros, 2012, p. 3).

Finally, the literature confirms the issue in literacy research and schooling that instrumental and technocentric approaches to digital media should give way to pluralistic and participatory models “determined locally, according to local choices” (Chapman & Slaymaker, 2002, p. 25). In other words, schools, teachers, families, and researchers need pluralistic tools for connecting digital media, literacy, and economic life, for understanding poverty in the digital age, digital participation, possibilities for meaningful change, and possibilities for digital exploitation (Schimmel, 2009). All too familiar in literacy research, this review of literature underscores the problem of deficit models driving acquisition of digitals and participation in digital spaces. In a review of digital divide literature, Vaughan (2011) distinguished “ICT programs which demonstrably and explicitly contribute to community well-being aspirations through the contribution they make to capabilities” as “being sustained by communities,” while a lack of such meaningful connections result in failed programs and waste (p. 7). Lack of consciousness about the development goals being incorporated in contemporary education are specifically implicated in such indictments of digital media development programs (Maye and McGrath 2010). This tension between top down and bottom up grassroots digital media acquisition represents a crucial issue present in the literature (Harris, 2004), where functionalist rationales, “What is and what can be achieved” meet moral challenges, “What should be done and how should we do it?” (Unwin, 2009, p.33). Further, participatory development efforts, should they be conceived and deployed in schools may still “hide or widen existing divides,” hence a need for balance between meaningful participation and “reinforcement of existing power hierarchies and exclusionary practices” (Grimshaw & Gudza, 2010, p.10; Blake & Quiros, 2012). The question has been raised by combining factors and zooming in on particulars, as well as by critically reflecting upon the stories told about literacy, technology, and growth: Whose economy matters, and why?

What are the Gaps in the Extant Research and Directions for Future Research?
Position statements on digital media education pay scant attention to the economic significance of literacy, digital media, and adolescent digital media practices. References to economic impact rarely go deeper than mere mention of economic significance. Educational reform initiatives seeking to restructure schooling in Asia, Europe, and North America treat the New Economy as a form of progress for those who remain competitive (Asia-Pacific Economic Cooperation, 2014; Common Core State Standards Initiative, 2014). The idea of a set of “skills and competencies young people will be required to have in order to be effective workers and citizens” (Ananiadou & Claro, 2009) masks the diversity of use, meaning, and real economic significance of informational capitalism (Castells, 2010). It also reinforces a monochromatic view of the economic and political meaning of digital media. The idea of global skills for global competition (Partnership for 21st century skills, 2013; (US Chamber of Commerce Foundation, n.d.) justifies large scale co-option of education. In the US, many are crying foul, but widespread resistance across stakeholder groups to national and state standards initiatives has challenged almost everything about educational reform except its simplistic economic promises. In Florida, a leader in educational reform, the Career and professional Education Act (2013) is intended, to “lash our education system to the knowledge-based economy” (Florida Senate, President Office, 2013).

The literature does not univocally support the competition imperative. Global competition has resulted in significant job losses and even whole job sectors in the US and elsewhere. Other factors not related to the skill of the workforce shape economic life, and yet a persistent gap exist between research on the economics of digitization and narratives of educational reform, “which subsume educational attainment and social justice inside agendas for commodification, marketisation, employability and enclosure” (Hall, Atkins, & Fraser, 2014, p. 2).

The major gap has consequences for research on teaching and learning, since economics-minded research currently consists of recommendations based on the imaginary 21st century worker: her team spirit, critical thinking ability, ability to communicate, and adapt. Research has not yet connected what is known about economic impact of digital media with teaching. Instead, teaching is being connected with reductive literacy myths as proxies for knowledge about how digital media is integrated into economic life at multiple levels. Although popular and useful for guiding instruction away from more didactic, fact-based approaches, crosswalks that help teachers, families, and policy makers think between schooling and economics are much needed.

As research begins to responds to this gap, existing literature emphasizes the importance of participatory models of economic impact research that combine material and social dimensions of digital media, carefully evaluate how and why economic impact matters, and critically reflect upon potentially exploitive relationships. While international development fields increasingly embrace these characteristics of economic impact research, as markers of quality inquiry, they delineate a gap in digital media and literacy research attributable to longstanding disciplinary boundaries. The “funds of knowledge” project and approach (Gonzalez, Moll, & Amanti, 2005) illustrate the troubled past of integrating literacy participation, economic considerations, and exploitation. In that landmark study, local economic structures and struggles were centrally important to researchers, who understood the precariousness of immigrant Latino economic participation. And recognized the false promises of a literacy myth, in
which poor kids could change their economic future by doing well in school. They observed the profound disconnect between vanishing funds of labor knowledge and alienating and evanescent labor opportunities. And yet the implication of their research and the heart of the funds of knowledge approach is to ignore the economic well-being of actual communities in favor of leveraging what funds are left for school success. In the end, the literacy myth won out against less coherent and perhaps less palatable alternatives. Scribner’s concern that her predecessor Luria’s (1976) interests in literacy, conceptual, and economic development together were too broad has, in a way, come home to roost. Sociocultural and cultural-historical literacy research is theoretically equipped to engage the economic question, to do so locally and beyond, and to do so in a way that attends to human experience.

Critical media literacy has contributed significantly to the discussion of economic impact of digital media, yet economic critique is less robust and distributed less across the field compared with other critical platforms. In some cases, economic critiques may even make it more difficult to interpret the economic impact of digital media for purposes of education, particularly when research implicitly and explicitly positions people as proactive or empowered consumers. Framing people as consumers participates in neoliberal systems of social change, in which markets, supported vigorously by strong states, become exclusive arbiters of human experience.

Economic research on the social impact of digital media seeks to refine educational and government policies regarding literacy education and digital media infrastructure. Efforts to link digital media with dramatic changes in the domestic and global economy, along with critiques of those efforts, are warranted in the wake of the most political and economic developments. Among the most relevant phenomena to economics and digital media are the global recession, state collapse in the Middle East, independence movements worldwide, surveillance practices tied to economic activity, and digitally-mediated antisocial behavior. Besides the gaps in research created by ongoing change, even structural change, in economic, political, and technological structures, there is need for focus attention on combined effects of digital media and state control of the Internet. Existing hierarchical structures (e.g., coding language, ownership of wired infrastructure, and data providers) by which digital content are produced are not absolute. Studying the economic impact of different regulatory and commercialization models is needed. In education, the push to digitize instruction has only just begun to be analyzed (Hall, Atkins, & Fraser, 2014). The enclosure of economic labor through educational technology represents a significant area for future research, given current imperatives to create and distribute digital records of scholarship, instruction, and student work.

These areas for additional research share an emphasis on the production of digital social space and educational responses. It is difficult to overestimate the significance, politically, economically, educationally, and civically, of digital media and digitization in the contemporary production of space. Because that production is regulated politically, economically, socially, and culturally, the politics of space as outlined by Lefebvre (1992) can be a way to interpret the meaning of new arrangements of space (Butler, 2012; Elden, 2004). In sum, the production of new forms of social space represents a crucial area for research relating economic life and digital media. However, issues of scale are everywhere in research on economic impact of digital media, and recognizing scale as a
political and ideological construct (Delaney & Leitner, 1997) in defining problems and opportunities with digital media can lead to awareness of whose interests are likely to receive attention. Scale is an important yet unrealized tool for interpreting the significance of digital media development in educational research, too, although arguments drawing on the political and economic significance of scale are rare. Acknowledging scale and the production of social space as political and economic questions can be useful in suggesting alternatives to existing economic imperatives for digital media access and education (McKenzie, 2012).

**What are the Recommendations/Implications for Education, Civic Engagement (Global and Local), Social Practice, and Policy?**

Research on digital ecologies, digital economies, and their interlocking systems of knowledge and value should continue to demand better articulation of the economic significance of digital media. Despite generations of glib projections of economic growth, a “triple crunch” of financial crisis, climate change, and energy production (Wallis, 2008, para. 1) threatens almost every possible conception of economic life. Far from constructing a crisis narrative to motivate an unmeasured response, the message of the economic triple crunch should tell literacy and civic education that there is real, possible, meaningful work to be done for which existing conceptions of cultural relevance and equality are inadequate.

**Education**

Better articulation of the economic significance of digital media in education cannot remain, as it is now, “pitifully thin” (Rose, 2014, para. 4), if educational goals of preparing people for personal, civic, and economic life are to ring true. This current situation is especially precarious given drastic economic changes and erosion of myths of permanent economic progress. At the same time the politicization of educational reform threatens to move the discussion out of the realm of academic argument into demagoguery. Still, current pressure on education to respond to economic needs signals a crucial opportunity, to incorporate economics as a feature of culture in culturally responsive pedagogy (Ladson-Billings, 1995). Slavish acceptance of monochrome cartoons of digitally driven economic progress should give way, as has much research outside the field of education, to a kaleidoscope in which multiple economic histories, theories of technology, and literacy pedagogies apply.

A shift away from a mythical, linear, and large-scale view of economic change in the digital economy depends upon dynamic rather than static views of culture. Cultural and economic responsiveness in pedagogy depend upon participatory research that frames problems of poverty, access, and practice in terms of capabilities and goals rather than privation.

For academic disciplines and teaching in particular, working between economic imperatives and instructional design is crucial. Research has not yet attempted to connect the dots between literacy instruction and economic impact, hence reliance on the literacy myth to fill in the gap (Graff, 2011). Rather than only exposing the myth, Graff recommends using it strategically to foster the development of literacies among researchers, teachers, and students that resist racism, classism, and violence inherent in the hollow promises of literacy for economic gain (Stuckey, 1990).

**Civic Engagement**
Research on the economic significance of digital media is growing more critical of techno-centric, exogenous solutions to digital divides across multiple scales from the classroom and neighborhood to continents. This shift toward participation and fragmentation coincides with increased recognition that the promises of global, digitally-networked economies require careful consideration, especially regarding the scale of prosperity and the social, civic, and environmental consequences. Global economic change, regional political change, and environmental sustainability issues will continue to decenter literacy and technology from their prominent, yet mythical, role in safeguarding economic success. In civic life, as with education, such decentering sets the stage for exciting new research on the role of digital communication tools in economic development, which plays a dominant role in formal, national and international political arrangements. Changes projected for schools, teachers, students, families, and literacy research place these stakeholders in important positions of civic agency, with the likely outcome of increased accountability of government, philanthropic, and other agencies to this nuanced picture of economic aspects of digital media.

Managing the myths of literacy education and economic life requires critical civic consciousness. The development of critical digital literacies (Author and Colleague, 2014) by teachers and others produce digital media communication and spaces less as domains for consumption and more as boundary spaces in which alternative political and economic agency and arrangements may be explored. Thus the New Economy and its neoliberal underpinnings evoke responses constructed through new literacies (New London Group, 1996), and the new civics (Zuckerman, 2014). The “new” in the economy, literacy, and civics has less to do with time and more to do with space, participation, and multiple possibilities.

Social Practice

Everyday life is being digitized in ways that constantly defy the imagination. Musicians, news outlets, and artists thrive on virtual attention and approval. Digitized smiley faces and thumbs-up stand in for physical gestures. The “on demand” economy brings three dimensional printing, dry cleaners, restaurants, chauffeurs, programmers, and writers to our doors, promising to destabilize and reorganize the above and many other service and industrial sectors. In many ways, these innovations represent significant economic enclosures shaping social practice. Enclosure is an important economic concept of particular relevance as social life merges into digital spaces.

Enclosure refers to conversion of a thing, such as food or a word, from one economic status to another. An individual might enclose land formerly shared freely among neighbors, for instance, in order to convert the resource into personal wealth more efficiently. Digital media works the same way upon social practices. Social media platforms enclose everyday speech, emoticons enclose human gesture, and so on through music sharing tools, stock market trading aids, online instruction, and so forth.

The idea is that information is only digitized if it has value, if the process of digitization creates a stream of revenue for the parties responsible for the digital programming and infrastructure. Meetings once held in spaces occupied by a single business may allow third party companies to facilitate digital audio and/or videoconferences for which they will be compensated. So one or more brokers of digital media may enclose communication at work that was already monetized through wage labor. For contemporary work, such conveniences may be welcome, but what about
indigenous knowledge encoded in unknown languages? Information and practical wisdom specific to particular places, such as highly sensitive ecological zones, is unlikely to be preserved digitally if current investors are not able to envision a timely return on investment. By the same token, the economic factor acts as a mediating influence on the information itself, not only acting as a gatekeeper for information, but inevitably changing it. This reordering knowledge (Author, 2011; Carrette, 2007) obviously shapes social practices as well. Online recipes are a familiar example. Their accessibility and variety change how people cook, think about cooking, interact with elders, and value existing compendia of cultural knowledge. And they exist as economic ventures with very few exceptions.

Digital enclosure is important because, in addition to the economic conversion of hypothetically monetized information and practice, the practices change as they are translated. Cyber-bullying and human sex trafficking are troubling examples of how the translation of social practices into digital spaces brings about new challenges for law enforcement, families, and communities. Further, economic and political fallout from high profile instances of computer hacking and executions point to digital media as a potential catalyst for antisocial behaviors.

Policy

Much research on digital media and economics is explicitly oriented toward shaping Internet and digital media policy at the state, national, and multinational level. As research tends toward finer grained and more cautious analysis of digital media’s effect on economic growth, policymakers continue to grapple with contradictory imperatives from established and new economic interests. The thrust of recommendations is to invest in telecommunication expansion, but questions and concerns in the research are proliferating. Intellectual property protection and enforcement have been serious concerns for policymakers for years. Imperatives of growth and copyright protection are seldom in agreement, however.

Contemporary developments in research directed at policy makers stress the importance of nuanced views of digital media access, poverty, and digital media use. Implications for educational policy include adjustment away from cherished literacy goals accompanied by myths of economic attainment to more adaptive views of literacy and economic opportunity.

The “triple crunch” of energy cost, financial instability, and climate change (Wallis, 2008) place educational and other policy makers in a precarious position. Established economic interests who profit from core factors in global insecurity make progressive policy development difficult. A particularly poignant conflict of interest in this context has to do with workforce development as a matter of local, regional, national, and international policy. The idea of developing a workforce for as yet unknown occupations (Frey & Osborne, 2013) tests the resolve of policymakers who are simultaneously asked to help businesses succeed in increasingly difficult and competitive circumstances. The result is a policy trap, where forward thinking becomes the only solution to decreasing profit margins in existing economic arrangements but established economic interests must be protected by increasingly outdated policy.
References


Lee, J. (2009). Contesting the digital economy and culture: Digital technologies and the transformation of popular music in Korea. Inter-Asia Cultural Studies, 10(4), 489-506. DOI: 10.1080/14649370903166143


ECONOMIC IMPACT OF DIGITAL MEDIA


Important Terms

Digital divide: A term patterned after ‘achievement gaps’ among demographic groups, digital divides refer to different outcomes for learning and economic participation based on access to information and communication technologies.

Digital media: In contrast to analog media, which involve inscription with ink, carving, and the like, digital media use electronic switches to encode information. Programming involves arranging thousands of electronic switches to produce, receive, and exchange data. Digital media includes the physical hardware used in the encoding process, the digital “content” itself, and the mediating software.

Enclosure: A term in economic and agricultural history referring to the termination of shared rights (to land, especially) in favor of an owner, who subsequently uses a resource exclusively. The expansion of economic markets often involves changes in the way a natural or social resource is treated. Because digital spaces serve economic purposes, exchanges among users occurring there can involve economic enclosure. Social media provides numerous examples, in which creators of a networking site own and profit from the everyday communication of users.

Global North/South: Terms that denote the generic geographic, historical, economic, educational, and political division between North and South. North America, Europe, and developed parts of East Asia disproportionately control global resources. Disparities of wealth, housing, education, digital media access and numerous other factors underscore the power and privilege enjoyed by the Global North, while the Global South, home to the majority of natural resources and population, is excluded.

Knowledge economy: A term denoting an economic shift toward knowledge as a chief commodity. A knowledge economy, unlike agriculture- or labor-intensive economies, places emphasis on expertise and other forms of human capital as opposed to material products. As nonrenewable resources dwindle, economic advantage shifts toward knowledge products—innovation and reorganization of existing frameworks.

Literacy myth: Coined by educational historian Harvey Graff, literacy myths fuse the ability to read and write with economic and even moral progress. Graff and others, such as Stuckey (1990), argue that myths of economic progress through literacy obscure and oversimplify economic and political factors affecting prosperity, especially with regards to populations placed at risk because of race, socioeconomic status, and/or gender.

New Economy: A term referring to the shift from the manufacturing-based economy to a service economy.

Neocolonialism: A term referring pejoratively to the economic influence of capitalism, especially in the form of foreign investment and market expansion, on developing countries. Neocolonialism refers to new means (i.e., business, free trade) to reach familiar ends (i.e., exploitation of developing regions, political influence) without direct military force.

Neoliberalism: A term that refers pejoratively to the tendency of governments in developed regions to use their resources to support privatization, free trade, and reduction of economic regulation.