CONNECTED LEARNING

an agenda for

RESEARCH AND DESIGN

A research synthesis report of the Connected Learning Research Network

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SUMMARY

This report is a synthesis of ongoing research, design, and implementation of an approach to education called "connected learning." It advocates for broadened access to learning that is *socially embedded, interest-driven, and oriented toward educational, economic, or political opportunity*. Connected learning is realized when a young person is able to pursue a personal interest or passion with the support of friends and caring adults, and is in turn able to link this learning and interest to academic achievement, career success or civic engagement. This model is based on evidence that the most resilient, adaptive, and effective learning involves individual interest as well as social support to overcome adversity and provide recognition.

This report investigates how we can use new media to foster the growth and sustenance of environments that support connected learning in a broad-based and equitable way. This report also offers a design and reform agenda, grounded in a rich understanding of child development and learning, to promote and test connected learning theories.

We begin with an analysis of current economic, social, and technical trends that frame the educational challenges faced by many countries, especially in the Global North – including the contraction of economic opportunity, growing inequity in access to educational and economic opportunity, and the risks and opportunities of media engagement.

Connected learning addresses the gap between in-school and out-of-school learning, intergenerational disconnects, and new equity gaps arising from the privatization of learning. In doing so, connected learning taps the opportunities provided by digital media to more easily link home, school, community and peer contexts of learning; support peer and intergenerational connections based on shared interests; and create more connections with non-dominant youth, drawing from capacities of diverse communities. We also offer an approach to learning, design and program building that can expand the opportunities afforded by a changing media environment while minimizing the risks.

Our approach draws on sociocultural learning theory in valuing learning that is embedded within meaningful practices and supportive relationships, and that recognizes diverse pathways and forms of knowledge and expertise. Our design model builds on this approach by focusing on supports and mechanisms for building environments that connect learning across the spheres of interests, peer culture, and academic life. We propose a set of design features that help build shared purpose, opportunities for production, and openly networked resources and infrastructure.

The research is conducted as part of the Connected Learning Research Network, supported by the MacArthur Foundation's Digital Media and Learning initiative. The research network is an interdisciplinary collaboration among researchers, designers, and practitioners to advance an evidence-driven approach to learning, the design of learning environments, and educational reform that addresses contemporary problems of educational equity.

INTRODUCTION

Clarissa is a 17-year-old aspiring screenwriter, growing up in a working-class household in the San Francisco Bay Area. Her passion is fantasy fiction. When friends introduced her to an online role-playing site that involved writing fiction interactively, she jumped at the chance to connect with others who shared her interest. Online, she found a community of like-minded peers who shared her interests, and who collaboratively wrote stories and critiqued each other's work. Clarissa made great strides in her writing, engaging with it in ways that felt more authentic, and more motivating than her writing classes at school. In the end, she was proud enough of her work to use it in class assignments and in her college applications. She was admitted to two competitive liberal arts colleges, Emerson and Chapman, and attributes her success to the writing skills she developed in the role-playing world **(see Case Study 1)**.

Clarissa's out-of-school engagement in creative writing is an example of what we have dubbed connected learning—learning that is socially embedded, interest-driven, and oriented toward educational, economic, or political opportunity. Connected learning is realized when a young person pursues a personal interest or passion with the support of friends and caring adults, and is in turn able to link this learning and interest to academic achievement, career possibilities, or civic engagement. Digital and networked media offer new ways of expanding the reach and accessibility of connected learning so it is not just privileged youth who have these opportunities. Connected learning looks to digital media and communications to: 1) offer engaging formats for interactivity and self-expression, 2) lower barriers to access for knowledge and information, 3) provide social supports for learning through social media and online affinity groups, and 4) link a broader and more diverse range of culture, knowledge, and expertise to educational opportunity.

Young people today have the world at their fingertips in ways that were unimaginable just a generation ago. Clarissa connected with like minds and immersed herself in a collaborative effort to develop characters and stories through an online forum. World-renowned lectures, a symphony of voices and opinions, and peer-to-peer learning opportunities are all a click away. Through digital media, youth today have countless accessible opportunities to share, create, and expand their horizons. They can access a wealth of knowledge as well as be participants, makers, and doers engaged in active and self-directed inquiry. The most activated and well-supported learners are using today's social, interactive, and online media to boost their learning and opportunity, attesting to the tremendous potential of new media for advancing learning.

Despite its power to advance learning, many parents, educators, and policymakers perceive new media as a distraction from academic learning, civic engagement,

and future opportunity. Digital media also threaten to exacerbate growing inequities in education. Progressive digital media users like Clarissa are a privileged minority. There is also a growing gap between the progressive use of digital media outside of the classroom, and the no-frills offerings of most public schools that educate our most vulnerable populations. This gap contributes to widespread alienation from educational institutions, particularly among non-dominant youth.[1]

Without a proactive educational reform agenda that begins with questions of equity, leverages both in-school and out-of-school learning, and embraces the opportunities new media offer for learning, we risk a growth in educational alienation by our most vulnerable populations. This report frames an approach to learning, research, and design that seeks to address these current conditions of opportunity and risk. Part 1 of the report explores the challenges facing education today and the risks associated with technological change. Part 2 presents our model of connected learning, including discussion of its learning, design, and technology framework. In broken-out sections interspersed throughout the report, we provide illustrative cases of learners and learning environments that we reference throughout the main text. This report represents a collaborative synthesis of existing research by the Connected Learning Research Network members, in order to inform ongoing research, design, and program development.

What is Connected Learning?

Clarissa's case illustrates how a highly resourceful and interest-driven young person can find social and informational supports for a specialized interest. Although she did not have learning supports or many friends who shared her interest, the online world opened up a new site for learning and specialization. Not only was Clarissa able to reach out to form a new peer group that was knowledge and expertise-driven, but she was able to take what she learned from the online context and connect it to her school achievement. She was acquiring individual skills and knowledge, as well as adding value to a community by sharing her own knowledge and creating high-quality work.

In Clarissa's case, she built her own connected learning environment by tying together her interests, her peer networks, and her school accomplishments. With a bit more support, invitations, and infrastructure for connection, we believe many more young people can experience the kind of learning that Clarissa enjoyed. In this report, we explore a framework for connected learning, which identifies contexts, properties, supports, and design principles that we hypothesize can enable connected learning (see Table 1). Connected learning represents a framework for understanding and supporting learning, as well as a theory of intervention that grows out of our analysis of today's changing social, economic, technological, and cultural context.

1 The term **non-dominant** is used here instead of the more common descriptors of **minority**, **diverse**, or **of color**, as non-dominant explicitly calls attention to issues of power and power relations than do traditional terms to describe members of differing cultural groups.

Connected learning centers on an equity agenda of deploying new media to reach and enable youth who otherwise lack access to opportunity. It is not simply a "technique" for improving individual educational outcomes, but rather seeks to build communities and collective capacities for learning and opportunity like those Clarissa found in her online group. Without this focus on equity and collective outcomes, any educational approach or technical capacity risks becoming yet another way to reinforce the advantage that privileged individuals already have.

Young people can have diverse pathways into connected learning. Schools, homes, afterschool clubs, religious institutions, and community centers and the parents, teachers, friends, mentors and coaches that young people find at these diverse locales, all potentially have a role to play in guiding young people to connected learning. Connected learning takes root when young people find peers who share interests, when academic institutions recognize and make interest-driven learning relevant to school, and when community institutions provide resources and safe spaces for more peer-driven forms of learning. These spaces are not confined to online worlds.

Examples of learning environments that are currently integrating the spheres of peers, interests, and academic pursuits include athletics programs that are tied to in-school recognition, certain arts and civic learning programs, and interest-driven academic programs such as math, chess, or robotics competitions. These connected learning environments ideally embody values of equity, social belonging, and participation. Further, connected learning environments are generally characterized by a sense of shared purpose, a focus on production, and openly networked infrastructures. We explain each of these elements in Part 2 of the report.

Although connected learning can apply to any age group, we focus here on adolescents and, secondarily, on young adults. The period from around 12 to 18 years old is a critical time when individuals form interests and social identities that are key to the connected learning model. We also see adolescence and early adulthood as periods when young people establish an orientation to schooling and learning that can carry into adulthood, and begin to make decisions that will lead them to certain job and career opportunities.

As an approach to learning and design, connected learning is not bounded by a particular national or cultural context. We discuss our approaches to learning and media engagement in general terms, but because our research centers on the U.S. and Great Britain, our frameworks will likely be most relevant in places that share similar social, cultural, and economic conditions with these two countries.

Before discussing connected learning in depth in the second half of the report, we first turn to a discussion of some broader economic, social, and technological conditions that frame the problems we are addressing. To focus the discussion and to

capitalize on the expertise of this report's authors, we center our discussion on the United States. We acknowledge that these conditions vary considerably in different parts of the world, although much of what we discuss applies across the Global North, perhaps more widely. Emerging economies and countries that have not fully embraced digital and networked media confront different challenges in addressing questions of social equity and educational reform.

CASE STUDY 1

CLARISSA: CONNECTING INTERESTS WITH ACADEMIC SUCCESS

By C.J. Pascoe

Clarissa is a 17-year-old growing up in a working class suburb of San Francisco. Like most of the teens I talk to, Clarissa checks her MySpace site daily, looking for messages from her friends and her girlfriend, updating pictures or adding other content. Clarissa's primary hangout site is not MySpace, though. She is an avid online role player and spends most of her time on her favorite site, Faraway Lands, with her two best friends, also role players.

Their online role playing is not about murder and mayhem, but about trying out varieties of selves, informal storytelling, meeting new people and crafting a sense of themselves as writers. On this site they can hang out in a manner that isn't always possible in any sort of constructive way in their physical community, one plagued by problems of crime and gangs.

Clarissa describes Faraway Lands as a "really nice quality, good, inviting, comfortable, fun place to be." She finds it to be a community of supportive friends who have high writing standards and creativity. Members must write intricate character applications to join the site. These character applications are essentially 25,000 word descriptions of a given character, its race, its history and its location. For Clarissa, an aspiring writer and filmmaker, this site allows her to use "words like clay to create whatever stories suit your fancy." She finds the community to be a "nurturing" one, in which she is "able to fully develop intricate personalities and plots that in computer games, sports and academics are simply not possible." Faraway Lands is a text based site where members weave long and detailed tales about their characters' quests and adventures.

In this online hangout Clarissa has made many friends and transcended her local boundaries. While people of all ages are on this site, "most of the people that I've interacted with are in my age group. It's sort of cool 'cause they're far away and sort of fun." On Faraway Lands she is simultaneously in character and out of character as she "hangs out" and "chats" on an internet relay channel. During these chats she has made friends all over the world, telling me "I know a guy in Spain now and fun stuff like that."

Faraway Lands also provides a forum in which Clarissa can be creative and hone her writing skills. She and her role playing friends critique each other's writing and stories. She and a fellow role player from Oregon "had this sort of thing where we were reviewing each other's work all the time 'cause he just wanted all the input he could get." The creative aspect of this site is part of what drew Clarissa to Faraway Lands. "It's something I can do in my spare time, be creative and write and not have to be graded," because, "you know how in school you're creative, but you're doing it for a grade so it doesn't really count?" In this digital hangout, teens are not treated as problem causing kids, but as legitimate players, artists and writers. Unlike in school, where teens live in a world of hierarchical relations—where they are graded, run the risk of getting in trouble, and must obey all sorts of status and age oriented rules—in Faraway Lands Clarissa is evaluated on her creativity and artistic ability.

CASE STUDY 1

CLARISSA

Clarissa's stories involve themes of fantasy, triumph and escape. Her character Saloria, for instance, grew up in a poor neighborhood and was raised by a "loving community" rather than a nuclear family. As a teen, Saloria leaves this community to seek her fortune in the wider world. However, she soon realizes that, as a single woman, the world is a dangerous place. Saloria then decides to live her life as a man, "because men have it better. So she spends her days as a man." During the day, as a man, Saloria performs "roadwork around the city. She's a happy go lucky charming young fellow." At night "she's a crazy lady who has fun." Clarissa drew on her real life experience to create Saloria. She recalled fondly stories of adventurous women. She "loved those women who would go on these voyages acting like they were boys for months, and months, and months. It was daring and crazy. And I was like, 'I want to do that. That would be fun.'" While this sort of adventuring is not feasible for Clarissa, her characters can live out these fantasies. She sums up Saloria's story by saying, "It just started with that, the freedom of being a boy." Through this particular role play, Clarissa grapples with intense issues of adolescent identity work and imagines her way out of some of the gendered expectations faced by teenage girls.

Faraway Lands is Clarissa's "third place," a place where she can make friends, hang out, chat and write fantastical stories. It's both an escape from the physical world of school and an extension of her off-line social life. At the same time, her work and the skills that she has developed in Faraway Lands has served her well in school. She submitted a screenplay based on Saloria for a class, and used samples from her work in Faraway Lands in her college applications. She was accepted to both Emerson and Chapman, and attributes much of her success to the creative writing she developed through her activity in Faraway Lands.

A story from the field from the Digital Youth Project, 2007

Table 1
The Connected Learning Framework

Connected learning knits together three crucial contexts for learning:	
Peer-supported	In their everyday exchanges with peers and friends, young people are contributing, sharing and giving feedback in inclusive social experiences that are fluid and highly engaging.
Interest-powered	When a subject is personally interesting and relevant, learners achieve much higher-order learning outcomes.
Academically oriented	Learners flourish and realize their potential when they can connect their interests and social engagement to academic studies, civic engagement, and career opportunity.
Core properties of connected learning experiences include:	
Production-centered	Digital tools provide opportunities for producing and creating a wide variety of media, knowledge, and cultural content in experimental and active ways.
Shared purpose	Social media and web-based communities provide unprecedented opportunities for cross-generational and cross-cultural learning and connection to unfold and thrive around common goals and interests.
Openly networked	Online platforms and digital tools can make learning resources abundant, accessible, and visible across all learner settings.
Design principles inform the intentional connecting of learning environments:	
Everyone can participate	Experiences invite participation and provide many different ways for individuals and groups to contribute.
Learning happens by doing	Learning is experiential and part of the pursuit of meaningful activities and projects.
Challenge is constant	Interest or cultivation of an interest creates both a "need to know" and a "need to share."
Everything is interconnected	Young people are provided with multiple learning contexts for engaging in connected learning—contexts in which they receive immediate feedback on progress, have access to tools for planning and reflection, and are given opportunities for mastery of specialist language and practices.
New media amplifies opportunities for connected learning by:	
Fostering engagement and self-expression	Interactive, immersive, and personalized technologies provide responsive feedback, support a diversity of learning styles and literacy, and pace learning according to individual needs.
Increasing accessibility to knowledge and learning experiences	Through online search, educational resources, and communities of expertise and interest, young people can easily access information and find relationships that support self-directed and interest-driven learning.
Expanding social supports for interests	Through social media, young people can form relationships with peers and caring adults that are centered on interests, expertise, and future opportunity in areas of interest.
Expanding diversity and building capacity	New media networks empower marginalized and non-institutionalized groups and cultures to have voice, mobilize, organize, and build economic capacity.

PART 1:
CHALLENGES

Over much of our nation's history, expanding educational opportunity has been, in fact and in perception, a key element in the 'rising tide that lifts all boats.' ...after thirty years of steadily rising economic inequality in the United States, that tide is now running out, and our educational system may be doing more to perpetuate and even to increase inequality than to expand economic opportunity.

Michael S. McPherson
President, Spencer Foundation

Eric Wanner
President, Russell Sage Foundation

Foreword from *Whither Opportunity?*
Duncan and Murnane, 2011

Today's educational institutions are struggling to fulfill their mission of providing pathways to opportunity for all youth. In the past two decades, earnings have dropped for those without high school degrees, while dropout rates have continued to remain high among vulnerable populations. At the same time, privileged families are turning to costly private schools and enrichment activities for an educational edge, preparing their children for a competitive and volatile market for professional and fulfilling jobs.

Connected learning recognizes a tension between current approaches to education and the world that youth will inherit. Traditional pathways through schooling toward stable careers are an option for fewer young people; in their current form, schools can only deliver opportunity to a shrinking proportion of youth. Without educational alternatives that expand and diversify meaningful life options and pathways available to young people, we risk reinforcing an educational system that only serves the interests of elites, breeding a culture of competition for scarce opportunities.

In a world of global interconnection and rapid change, effective learning is lifelong and integrated into the real world of work, civic engagement, and social participation. We can't expect young people to be able to "bank" knowledge and skills from school and apply them to a stable world of work later in life. Instead, we need an approach to educational reform that recognizes learning as an ongoing process, connected to a diverse and evolving ecosystem of learning resources, institutions, communities, and outcomes (Freire, 1970).

Like Clarissa, Snafu-Dave looked online to find learning resources and relationships that supported his passionate interest in web comics. His college years gave him the time and space to explore his interest and hone his craft, though he found few courses directly relevant to his professional development. By accessing online tutorials, connecting with expert peers, and publishing online, Dave eventually became a commercially successful web artist **(see Case Study 2)**.

Both Clarissa and Dave are unusually resourceful young people who forged learning pathways to opportunity largely through their own initiative. Privileged families also support tailored learning opportunities through clubs, camps, sports, and other programs where their children get recognition, gain skills, and make meaningful contributions. The reality for too many youth, however, is that they see a shrinking set of options and little guidance towards new kinds of learning opportunity, community contribution, and diverse careers. Take the example of Louis, a young man highly involved in media production through a local hip-hop youth program. An accomplished and articulate artist, he nonetheless has a tenuous relationship to school. He describes how he feels his teachers "set you up for failure" and he has watched the majority of his friends drop out from high school. While Louis was able to pursue a

passionate interest with peers and mentors in his community program, he was not able to translate and connect his accomplishments to recognition in school or career (see Case Study 3).

What would it mean to consider an educational agenda that includes more flexible, informal, diverse, and interest-driven learning environments? Can we do this in a way that elevates all youth rather than serving the privileged minority? How can we capitalize on today's new media to expand these forms of learning opportunity? Can we support literacy in common core standards, as well as new media literacies, production, and design? Addressing these questions begins with a sober assessment of education's role in today's economic, social, and technological landscape.

Broken Pathways From Education to Opportunity

Much of today's conventional wisdom about the relationship between educational and economic opportunity was established in the so-called "golden age of capitalism" (Marglin and Schor, 1992) of the fifties and sixties, when preparations for entering the job market were reasonably straightforward. Jobs were plentiful and the fraction of "good" or "better" jobs among the total was rising. The middle class was expanding, returns to education were high, and inequality was falling. High school, college, and professional degrees provided solid stepping-stones towards high-quality jobs and careers. Based on this history, the message to young people has been that they should seek college educations and professional certifications as a reliable economic investment. However, in the last twenty years, these conditions have changed markedly.

Today's American youth are entering a labor market strikingly different from earlier generations. Over the last decade, global economic integration and the collapse of the Soviet Union have led to what economist Richard Freeman (2008) has called a "doubling" of the global labor market, from a pool of 1.46 to 2.93 billion. This has created a chronic shortage of jobs relative to those who seek them. The economic downturn that resulted from the 2007 financial panic has worsened this shortfall (see Figures 1 and 2).[2] Projections for recovery are not promising.

[2] For example, total unemployment across the world remains higher today than it was in 2007. Globally, GDP, private consumption, investment and trade have all surpassed their pre-recession levels, but unemployment is roughly 15% above where it was in 2007. The fraction of the global population working (employment to population ratio) has fallen by more than half a point since 2007, with especially steep declines in wealthy countries (Elder, Kapsos, and Sparreboom, 2010).

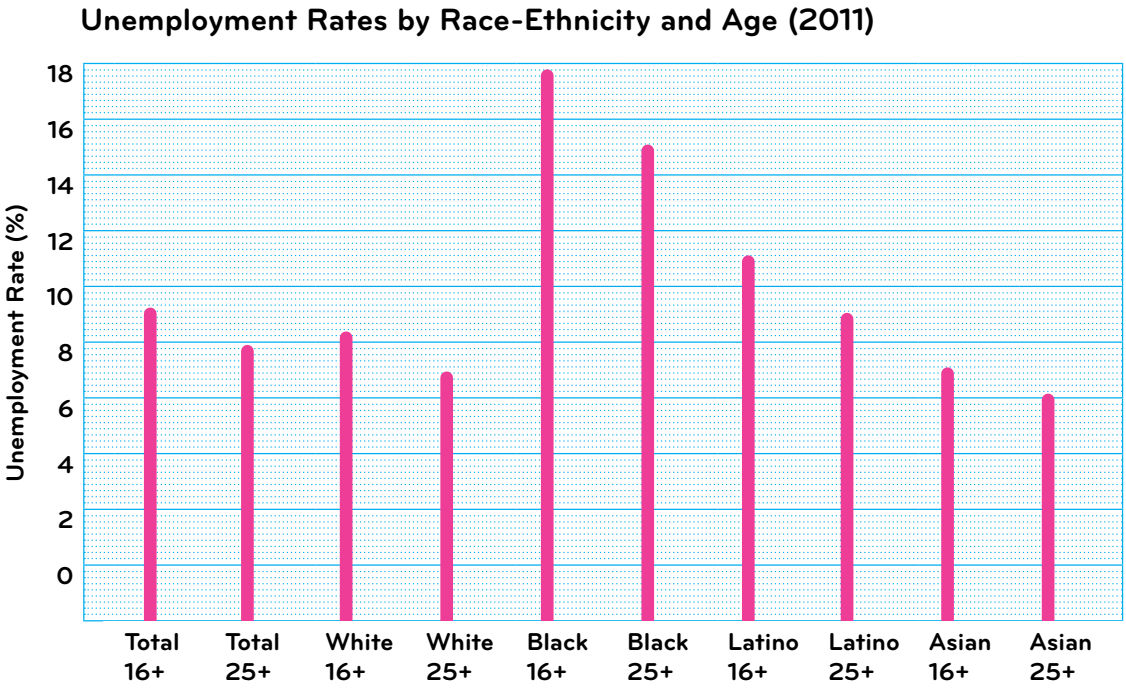


Figure 1
Unemployment in the US by race/ethnicity and age (2011)

Source: Bureau of Labor Statistics, U.S. Department of Labor, *Household Data Annual Averages*. Retrieved from: http://www.bls.gov/cps/cpsaat24.pdf.

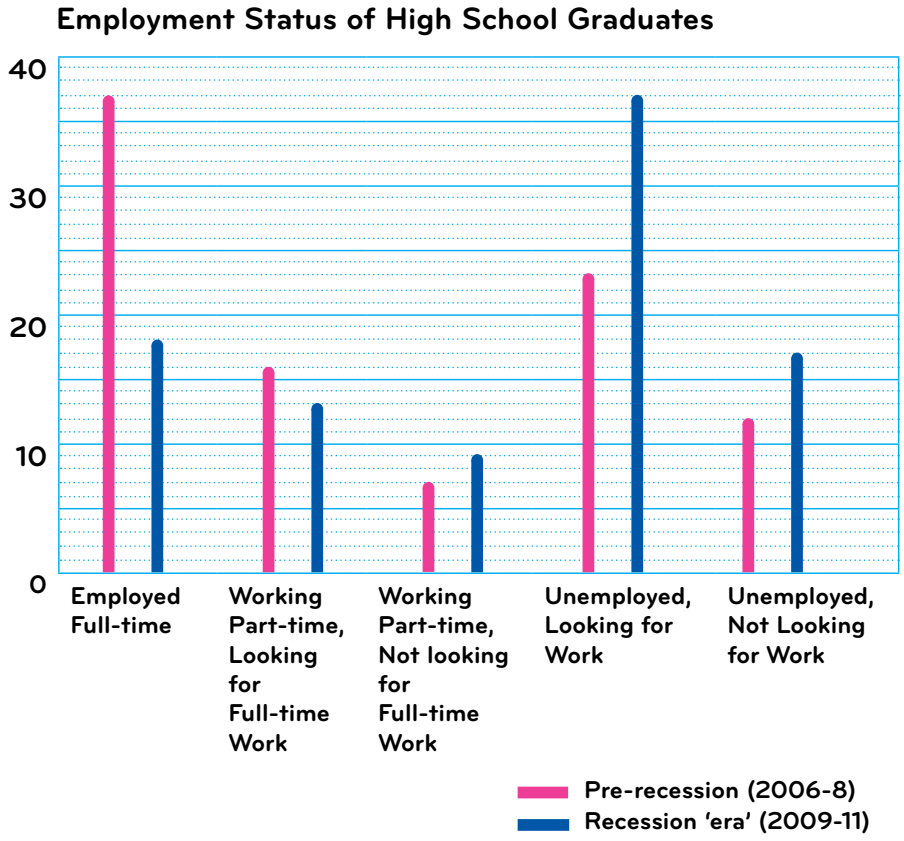


Figure 2
Employment Status of high school graduates not attending college full-time

Data courtesy of John J. Heldrich Center for Workforce Development, Rutgers. Survey of 544 U.S. residents aged 18-29, conducted from March 21-April 2, 2012.

These higher rates of unemployment and joblessness are only one part of this transformation. Income inequality, fueled by labor saving technological changes that favor skilled over unskilled workers, globalization, declining unionization, and a failure of minimum wages to keep up with inflation has sharpened significantly in the last few decades. Wealth is more concentrated than it has been since the "robber baron" decades of the early twentieth century. (Mishel et al., 2012). While changes in class dynamics and the implications for inequity are controversial subjects, certain trends seem to hold: the working class and middle class have been eroding as we see a growth in the impoverished class, what has been dubbed a "creative class"[3] on the rise, and an upper class—"the 1%"—pulling away from the pack. Social mobility, or the average person's chances of attaining a comfortable life, has declined (Bowles, Gintis and Groves, 2008). Young people have suffered from these trends more than their elders and are disproportionately in poor quality jobs with low wages (Elder, Kapsos, & Sparreboom, 2010; Mishel, Berstein, & Shierholtz, 2009) (see Figure 1). Unemployment rates for African American and Latino young people are particularly high (Bureau of Labor Statistics, 2012).

A college degree has become a requirement for most good jobs, but is no longer a guarantee of acquiring one. The national population is growing more educated, and increased numbers of young people are attending and graduating from college. Since the late seventies, there has been significant growth in college attendance among youth in higher income brackets, while rates of college attendance among poor youth have remained relatively flat (Bailey and Dynarski, 2011).[4] To the extent that education confers a relative, rather than an absolute, benefit, this trend will undermine the labor market returns of higher education for those in the upper brackets. Indeed, wages for both men and women entry-level college graduates (i.e., workers aged 23-29) have fallen over the period 2000-2011, (Mishel, 2012).

A second reason for a declining education premium is that the U.S. advantage in higher education levels is eroding rapidly as other countries enroll large numbers of young people. By 2006, the U.S. share of all university degrees granted globally had fallen to just 40 percent of its 1970 level (Freeman, 2009). For U.S.-educated youth, this means a more competitive labor market with lower returns. On the other side of the ledger, the real cost of higher education has risen 2.6 times since 1980 (National Center for Education Statistics, 2011a) and a majority of students (67 percent) must take on debt to finance college (Bureau of Labor Statistics, 2010a; National Center for Education Statistics, 2011b).

Educational reformers have moved in different directions in adapting to these changes. A strong current in the workforce readiness view holds that "creative work" is where the security will be, and that the current education system must produce students who are capable of the critical and creative thinking skills that will be

[3] It is beyond the scope of this report to enter into the debates over Richard Florida's framing of the creative class and creative industries (see for example Lovink and Rossiter, 2007). While recognizing the contested nature of the economic policies and theories associated with the term, we use it as an existing shorthand for a class of professional workers engaged in knowledge-centered and creative pursuits. While we believe much more work needs to be done to specify the characteristics and contexts of what has been called the creative class, we do believe that the term points to important trends in the growing salience of certain forms of more flexible knowledge work and creative labor.

[4] Based on a comparison of the National Longitudinal Survey of Youth conducted in 1979 and 1997, Bailey and Dynarski (2011: 120-121) find that rates of college completion rose 18 percentage points for those in the highest income quartile, while only rising 4 percentage points for the lowest quartile. This means that income-based inequity in access to college degrees has increased during this time period even as overall college completion rates have risen.

necessary in the global economy. Florida (2002) describes creative work as research, development, design, marketing and sales, and global supply chain management, which require critical thinking, innovation, and creativity. The skills that he cites as necessary for creative class work parallel what has been described in terms of "21st Century skills" such as systems thinking, problem solving, critical thinking, adaptability, self-direction, and perseverance (for example, Araya and Peters, 2010, Warschauer, 2008, National Research Council, 2012).

A nationalist sentiment underlies many discussions of the creative economy, with a vision of an explicit international division of labor: Americans do "creative work" and less developed countries do "routine work." It's a harsh neo-liberal world out there, the argument goes, and we need to prepare our children to compete for the jobs at the top of the ladder. The New Commission on the Skills of the American Work Force argues that with globalization, traditional middle-class jobs will not be available to Americans with a modest or limited education. For U.S. workers to maintain high levels of income and stay competitive in the global jobs market, they will have to congregate in "creative work." The commission has argued for school reforms that include a European-style system of career-oriented tracks, which ends the public commitment to schooling at Grade 10 and then tracks students into either college-level classes or vocational education.

One issue often sidestepped in these discussions about preparing our children for the creative workforce is one of supply and demand. Preparing children for creative jobs does not guarantee that those jobs will materialize just because workers are standing by. Many economists believe that labor market opportunity is more a function of technology and demand than labor supply. And the forecast is that job growth will be concentrated in low-skill, dead-end work in the service sector. The Bureau of Labor Statistics (BLS) notes that among the ten occupations forecast to grow most, only two require a bachelor's degree (accountant and postsecondary teacher) and six require no degree at all. The BLS forecasts lead to the conclusion that a highly creative workplace will be a privilege for only a fraction of the labor force. Brown, Lauder, and Ashton (2010: 5) argue that many Americans "schooled in the belief that 'learning equals earning,'" have unrealistic expectations about how education will lead to economic opportunity. They argue that in today's "global auction for cut-priced brainpower" the "neoliberal opportunity bargain, which offered families a path to individual and national prosperity through education, has been torn up."

Others suggest that up-skilling and higher education levels across the whole labor force can change the global distribution of production and yield a structure of work that is appropriate to the higher skills (National Center On Education and the Economy, 2008; Hagel, Brown and Davison, 2010). This is a debate that requires much more research to settle, particularly because the answer hinges on the unpredictable

effects of globalization on the US economy. Regardless of which job forecasts win out, we anticipate a future of heightened competition for good jobs, and a reduction in the wage premium gained by education. In this context, a neo-liberal vision of a market-driven education system is far more likely to yield a permanent two-track system than an environment in which opportunity and outcomes are widely shared across the citizenry. In order to pursue an educational reform agenda that is oriented towards equity, we need to confront these market realities as well as take into account the highly unequal educational playing field dominant and non-dominant youth encounter. Our educational system will fail those young people who it most needs to serve without solutions that look to education as a way of building capacity and meaningful participation rather than as a pipeline to a shrinking sets of opportunities.

CASE STUDY 2

SNAFU-DAVE: A SELF-DIRECTED PATHWAY TO A CREATIVE CAREER

By Mizuko Ito

SnafuDave, whom I interviewed as part of my study of anime fans, is a successful web comics artist. In addition to creating his own web comics, SnafuDave, who is in his early twenties, manages a web comics site, Snafu Comics (snafu-comics.com), which features comics by twelve other artists in addition to his own.

SnafuDave explained how he got started with web comics in his first year of college. He went to school in what he described as a "super, super, super tiny town," and he had been planning to major in math. The summer of his freshman year, he decided to stay for summer school when none of his friends did and was "bored out of my mind in this little town." This was when he ran across Penny Arcade, the first web comic he had read. "I just got obsessed with it. It took me three or four days to go through all of their comics. And I just absolutely loved it." He described how he went on to find other web comics he liked and then decided to take the plunge himself. He went to the library and checked out HTML for Dummies, got a copy of Photoshop from a friend, and got started. After much trial and error, and learning through a variety of online tutorials, he began to hone his craft. "About three years later, I actually started getting semi-good at it."

Along the way SnafuDave tried changing majors to suit his new interests, first enrolling in a computer science major and then eventually switching to digital media. He thinks, however, that he learned few of his current skills in the formal educational context. "This whole time, school's more valuable for me to have basically a time frame where I could learn on my own and practice." College also gave him the time to learn how to market his work online and to develop an online network of fellow creators and readers.

Snafu Comics makes a substantial amount of money through online ads, but SnafuDave explained that he uses this revenue to pay for the costs of maintaining and improving the site. Since the site aggregates the work of multiple artists, he does not lay claim to the site revenue for his personal income. Instead, he was making his living as a freelance web designer. The other artists on his site also have day jobs, mostly in graphic design. When I spoke to him, SnafuDave had recently launched merchandising ventures such as T-shirts, prints, and buttons to sell at conventions. Now his site hosts a web store where fans can order these items. At the time of our interview, he was not making a living off web comics. "I would really like it to be paying for all of our lifestyles someday. And definitely, right now, I believe it could." I asked if his family and local friends were supportive of these aspirations.

> Well, my mom actually thinks I'm a complete waste to society, no matter what. She's all, "Get a real job." Even though, I… yeah. Whatever. My dad thinks it's pretty cool. About a third of my friends are really supportive of it. I'd say about two thirds… actually, about one third doesn't care at all. And then another third actually despises me for it. Like they hate that I get all this attention online when I'm just a kid from a small town.

CASE STUDY 2

SNAFU-DAVE

I am curious about whether there is a stigma attached to being so involved in comics and anime, and SnafuDave explained that the issue is more personal. "I design websites once or twice a month for clients and then I play online all day. And it drives people crazy. It really does… But I don't think it's that envious. I'm sure it is a really cool job, but I'm just a nerd. It's not like I'm a rock star or anything." In a follow-up email, almost two years after the initial interview in 2006, he gave me an update. His merchandising business had started paying off enough that he quit his day job to devote himself full time to web comics. He may not be a rock star, but he is one of a handful of artists who have parlayed their web comics hobby into a professional career.

Excerpted from Hanging Out, Messing Around, and Geeking Out: Kids Living and Learning With New Media, 2010

A Growing Learning Divide

In this era of economic contraction, disparities in access to educational, economic, and political opportunity have become starker, and continue to be tied in troubling ways to racial and ethnic background. An extensive body of research has documented the "achievement gap" between white and Asian youth and African American and Latino/a students. Despite the recent gains by African American students in educational testing, they still lag far behind their white counterparts. A 2009 report by the U.S. Department of Education found that white students scored, on average, at least twenty-six points higher than African American students in mathematics and reading on the National Assessment of Educational Progress (NAEP) exams. Latino and African American students from low income households are not only scoring lower on achievement tests; they are also significantly more likely to drop out of school than their white and more affluent counterparts.

According to The Center for Research on the Education of Students Placed at Risk (CRESPAR), the nation's "drop out factories" are overwhelmingly the province of African American and Latino students (Balfanz and Legters, 2004). The number of drop out factories grew substantially during the 1990s. A "majority-minority" school, according to CRESPAR, is five times more likely to have weak promoting power than a majority white school (Balfanz and Legters, 2004). Students from low-income households are much more likely than students residing in high-income homes to attend schools where graduation is not the norm.

These disparities risk intensifying as the share of non-white and Latino youth in the U.S. grows. In 1990, 32 percent of the population under age twenty was minority. By 2008, it was 43 percent (U.S. Census Bureau, 2009). Furthermore, this trend is likely to continue given that the non-white and Latino population is generally younger. According to a report by the Pew Hispanic Center (2012), as of 2009, nearly one in four Hispanics were under the age of 18. For the first time ever in the U.S. the percentage of non-white and Latino infants under age one is above fifty percent (U.S. Census Bureau, 2012). The median age for Latinos is twenty-six and for African Americans, the median age is thirty. This compares to a median age of thirty-nine among non-Latino whites (U.S. Census Bureau, 2001).

We believe that the social, civic, and educational implications of what some researchers refer to as a "demographic tipping point" are especially significant. In states such as California and Texas the demographic shifts have created "majority-minority" populations that are remaking the face of public schools and education. According to Frey (2011a) a growing number of states across the U.S. are following the trends established in the nation's two most populous states. A look at the major metropolitan areas in the U.S. reveals some pronounced shifts in the racial and ethnic make-up of these

areas. Non-whites and Latinos accounted for ninety-eight percent of the population growth in large metropolitan areas from 2000-2010 (Frey, 2011b).

Taken together, the educational and demographic indicators point to growing populations of non-dominant youth who are being shut out of educational pathways to opportunity. Many factors can explain the achievement gap. Some of the most influential theories have looked to cultural factors in young people's engagement with schooling (for example, Fordham and Ogbu, 1986). In recent years, scholars have criticized approaches that focus too much on the social and cultural deficiencies of non-dominant students as a way of explaining the achievement gap. For example, O'Connor, Horvat, and Lewis (2006) argue that placing responsibility on the culture or peer dynamics of African American and Latino youth ignores the structure of schools and their lack of curricular innovation. In some instances what appears to be an opposition to academic achievement among African American and Latino students is, in fact, an opposition to the institutional authority and punitive practices that devalue their linguistic practices, distinct learning styles, and modes of self-presentation while also subjecting them to harsher in-school discipline.[5] Immigrant youth, particularly undocumented youth, face additional financial and institutional hurdles in accessing educational and job opportunities (Gonzales, 2011; Suárez-Orozco, Suárez-Orozco and Todorva, 2008).

Other researchers have looked to home environments to understand differences in educational attainment. Recent studies have indicated the high and growing levels of investment that upper income households make in out-of-school enrichment activities. Duncan and Murnane's analysis of consumer expenditure data indicates that upper income households' expenditures on enrichment activities have nearly tripled from the years since 1972 and 2006 (see Figure 3) (Duncan and Murnane, 2011). Covay and Carbonaro's analysis of extracurricular activities (2010) confirms higher levels of participation by upper income families, and suggests that this participation contributes to some advantage in non-cognitive and cognitive skills and varies by factors such as race and ethnicity as well as by SES.

Based on ethnographic work, Annette Lareau (2003) describes an orientation in middle class families that she calls "concerted cultivation," a tendency to structure and manage a variety of "enrichment" and learning activities for their children. She contrasts this orientation to the "natural growth" model she saw in the poor and working class families in her study. While concerted cultivation may be tied to academic achievement, a growing set of critiques of "hyper parenting" (Rosenfeld and Wise, 2001), and the "curricularization of family life" (Buckingham and Scanlon, 2003:6) have raised serious questions about potential negative effects on young people's overall health and well being. Concerns are growing among the middle class and elites about rising levels of stress and anxiety among achievement-oriented youth (Levine,

[5] Research has documented how African American and Latino students are subjected to harsher punishment and disciplinary action in school (Fabelo, Thompson, et al., 2011).

2006; Pope, 2001; Rosenfeld and Wise, 2001; Gutiérrez, Izquierdo and Kremer-Sadlik, 2010; Luthar and Latendresse, 2005). Luthar et al. (2006) have suggested, however, that it is parental attitudes toward achievement that predict these negative outcomes more than the presence of high extracurricular involvement per se. Barbara Ehrenreich (1990) has critiqued the striving, competitive orientation of the "professional middle class" which looks to education as an exercise in self-discipline, a marker of "earned" status, and a way to maintain privilege in the absence of the economic capital of the upper class.

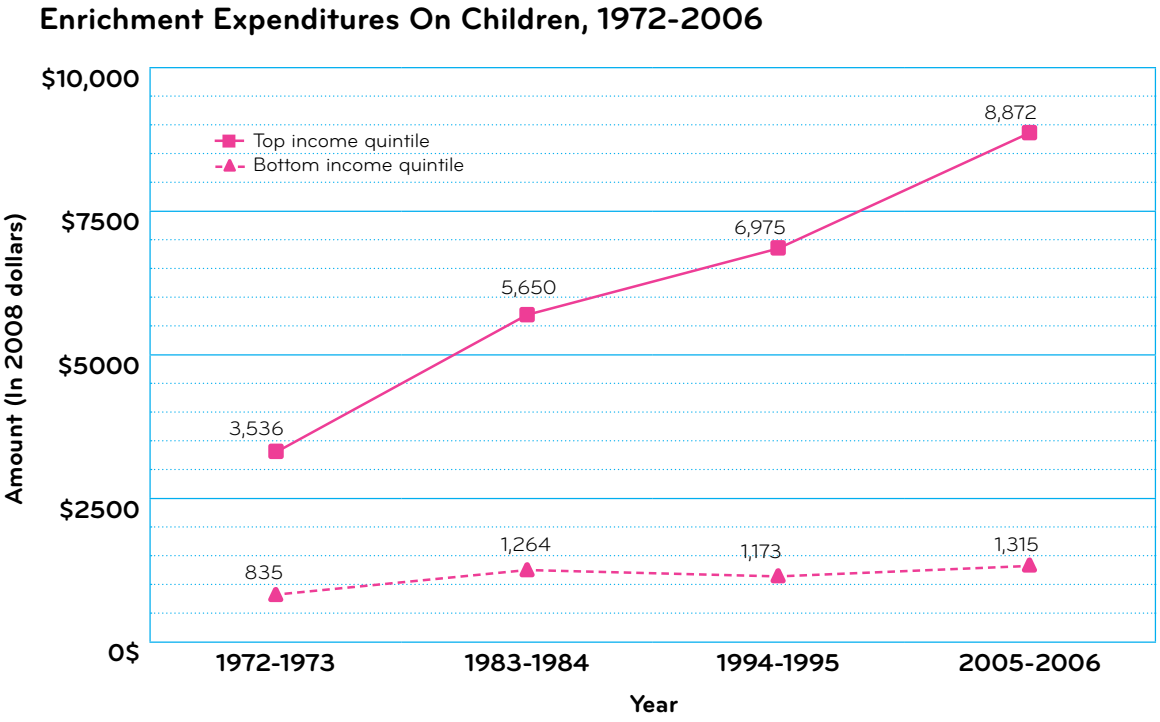


Figure 3
Growth in Enrichment Expenditures in Income

Source: Duncan, Greg J. and Richard Murnane. "Figure 1.6, "Enrichment Expenditures on Children, 1972 to 2006." In *Whither Opportunity?: Rising Inequality, Schools, and Children's Life Chances.* © 2011 Russell Sage Foundation, 112 East 64th Street, New York, NY 10065. Reprinted with Permission. https://www.russellsage.org/publications/whither-opportunity

The orientation to managing out-of-school learning extends to popular media, with privileged parents tending to monitor, manage, and limit media engagement. Conducting research in the eighties, Ellen Seiter (1995) documented how poor and working-class families embraced popular children's media, whereas middle-class families viewed TV-based children's media as a negative. Hoover, Clark, and Alters (2004) saw similar dynamics in their study of parenting styles, where many middle-class families felt that limiting access to television and related toys was a marker of good parenting. Survey work has also demonstrated that within lower income households African American and Latino children watch more television and play more video games than their middle class and white and Asian counterparts (Rideout et al., 2010; Ferguson, 2006).

As we see changes and challenges to established middle class parenting models, we believe that more research is needed on models of "cultivation" and media engagement

that offer young people spaces of self-determination, play, and experimentation. Surveys have shown that these dynamics are shifting with the turn to digital and networked media, with highly educated households beginning to engage more heavily with "popular" media (Rideout et al., 2010). We expect that a more participatory and technically sophisticated media environment has meant that privileged or "creative class" identified families tend to see more value in their children's participation with media technology. In addition, ethnographic work has provided examples of young people from lower income families having an entrepreneurial and resourceful orientation that has served them well when they are given access to digital resources and related social supports (Ito et al., 2010: 315-318, 320-323). These are suggestive indicators of how families are supporting learning at home in ways that are not exclusively focused on competitive achievement and highly managed extracurricular activities.

What is clear from the existing literature is that currently it is generally educationally privileged youth with effective learning supports at home who are able to take full advantage of the new learning opportunities that the online world has to offer and to translate these opportunities to their academic and career success (Ito et al., 2009; Livingstone, 2002, 2009a; Seiter, 2005, 2007; Watkins, 2009). Although in principle, one might expect young people to do anything online, as fits their interests, in practice it appears that they climb a fairly predictable 'ladder of opportunities' as they become more skilled users (Livingstone and Helsper, 2007). This 'ladder', which parallels that conceived in the domain of civic engagement as a 'ladder of participation' (Hill and Tisdall, 1997), captures the finding that while many young people take the fairly basic steps (such as checking Wikipedia for schoolwork, watching clips on YouTube, or playing single-person games), fewer undertake the more complex, social, or creative activities that techno-optimists have hoped for them. The EU Kids Online project shows that most youth do not progress very far up this ladder of opportunities (Livingstone, Haddon, Görzig and Ólafsson, 2011), with only a minority creating, uploading or posting content or joining participatory communities (Livingstone et al., 2012; see also Lenhart and Madden, 2005). The emerging hypothesis that undergirds our approach is that the majority of young people need more supports to translate and connect their new media engagements toward more academic, civic, and production oriented activities. We advocate for more focused research that examines both in-school and out-of-school supports for self-directed, interest-driven, and technologically enabled learning through the lens of equity and opportunity.

The trend for privileged young people and parents to mine the learning opportunities of networked and digital media is one more indicator of how differential supports in out-of-school learning can broaden the gap between those who have educational advantages and those who do not. When the public educational system lacks a proactive and well-resourced agenda for enriched and interest-driven learning, young people dependent on public institutions for learning are doubly disadvantaged.

CASE STUDY 3

LOUIS: DISCONNECTED PATHWAYS FROM SCHOOL TO OPPORTUNITY

By Dilan Mahendran

Louis, an 18-year-old African American young man, is a participant in the hip-hop music production program I have been observing. He is an articulate and accomplished young artist and a valued contributor in the program. He sees his creative work in hip-hop as potentially an avenue to a career in music.

In contrast to his investment in his hip-hop community, Louis has a less favorable view of the opportunities available to him in formal education, and he left high school in his senior year. He describes a moment during his first day of high school, referencing a famous scene in the book and the movie, The Paper Chase, in which a Harvard Law School dean warns first-year students that most of them will not make it through the program.

> LOUIS: Yeah. When you're a senior, 80 percent of the people you see right now are going to drop out…look to the left and look to the right, because they're not going to be here.
>
> DILAN: That's what the teacher said to you?
>
> LOUIS: Yeah. They set you up for failure. You know what I'm saying? We look to the left and we look to the right, and we laugh about it at that time. We're like…ha, ha, ha. I had my best friend Jerell and my best friend Rob. Sure enough…
>
> DILAN: You were fourteen?
>
> LOUIS: We were fourteen, fifteen at the time. Sure enough, Jerell drops out in eleventh grade and Rob drops out somewhere I think in eleventh grade. I dropped out somewhere in the twelfth grade. And it's kind of like they was fucking right. We all dropped out. It was kind of like [inaudible]…fuck, they were right. How the fuck did you know? It's a psych trip. First day of school, of course you're going to sit with your friends. Of course you're going to sit with somebody that you identify with. All right, look to your left and look to your right; they ain't going to be here. Then you go to school every day and it's like this—fuck up, fuck up, fuck up…That's how school is.

Even among youth who were highly engaged in youth media programs like the hip-hop program, I found many like Louis who were deeply pessimistic about what opportunities formal education afforded them. These young people often saw a more vocational orientation toward digital media as an alternative to a middle-class school-to-work trajectory. Rather than focusing on an academic pathway that he doesn't feel serves his interests, Louis sees the apprenticeship and mentorship of the media-production program as a compelling alternative.

Excerpted from Hanging Out, Messing Around, and Geeking Out: Kids Living and Learning With New Media, 2010

A Commercialized and Fragmented Media Ecology

We have painted a sobering picture of the contraction of career possibilities and entrenched forms of inequity that straddle both in-school and out-of-school learning. Complicating this picture is a rapidly changing media and technology environment. We are living through a dramatic shift in our engagement with media and technology, and this shift is most pronounced among children and youth.

Youth are increasingly immersed in media. In 1999, for example, U.S. youth between age eight and eighteen spent, on average, 7.29 hours a day using media. By 2010, the typical American youth was spending nearly eleven hours a day with some form of media (Rideout et al., 2010). Some of the youngest members of our society are adopting new media technologies at a rising rate. According to one report, of the twenty million minors who actively used Facebook, more than one-third were younger than thirteen (Consumer Reports, 2011). Young adolescents commonly play online games, and a surging number own mobile phones. In 2004, roughly 40 percent of U.S. twelve- to seventeen-year-olds owned a mobile phone. By 2010, this had jumped to three in four teens (Lenhart, 2010). The trend towards broad based adoption is common across countries in which digital, mobile, and networked technologies have become affordable and accessible (see Figures 4 and 5).

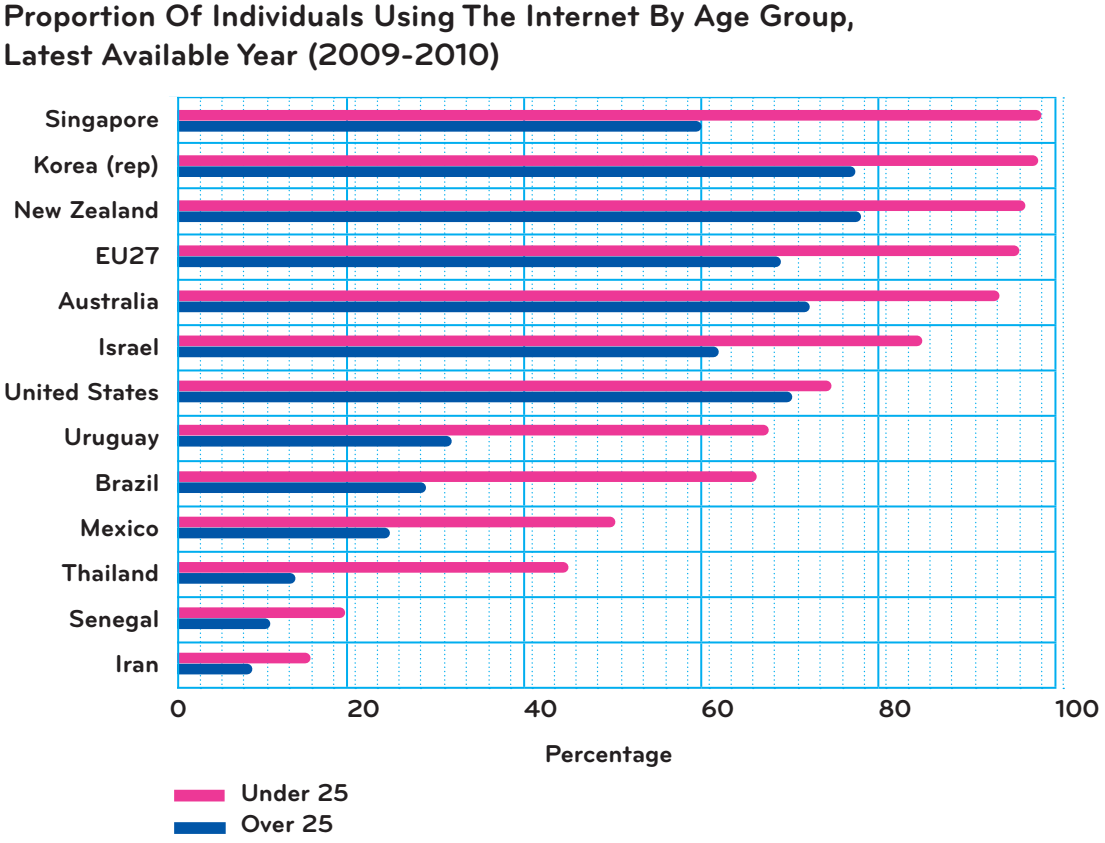


Figure 4
International Internet Adoption by Age Group

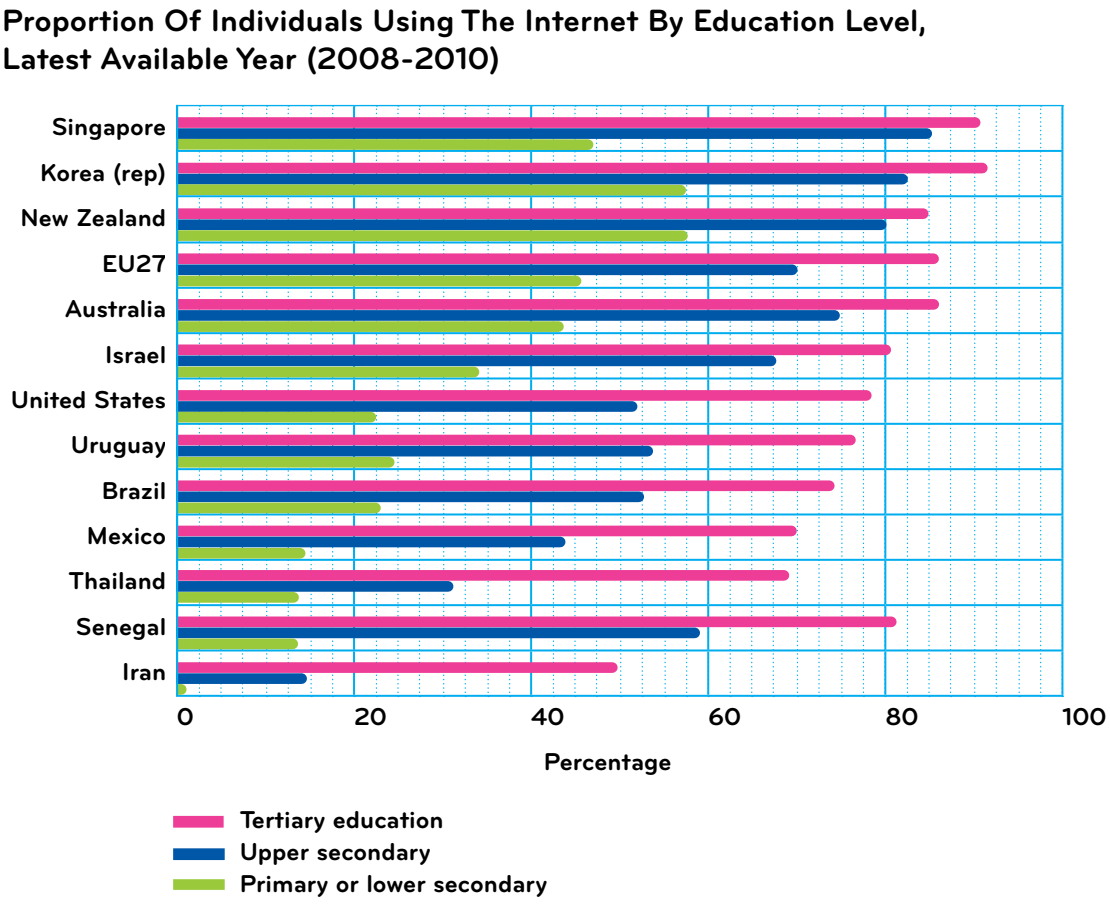


Figure 5
International Internet Adoption by Education Level

Data for Figures 4 and 5 courtesy of the International Telecommunication Union, 2011.

Even just a few decades ago, it was common to refer to "the media"—a collection of singular and unconnected goods, each playing a distinct role in children's lives (books, comics, television)—side by side with many other activities (toys, games, music, sport, play). For today's children, however, these activities have all become mediated to a greater or lesser extent, while media itself has converged around multifunctional screens that integrate voice and text communication, image and video, games, photography, music, television, print, and apps. The convergence of diverse forms of content into digital platforms has happened in tandem with the convergence or conglomeration of the companies that own them. Teen and children's media and communications are now firmly established as distinct and profitable sectors of the consumer market, with ever more sophisticated advertising, sponsorship, and branding, even targeting early childhood (Schor, 2004).

Many scholars have raised concerns over capitalism's growing incursion into our private lives. Media promoted for children are often strongly shaped by commercial imperatives at odds with children's development, and may contain more

explicit violent, sexual, prejudiced, or harmful content than parents and teachers are equipped to deal with. The growing market for educational technologies, homework materials, parenting guides and media-branded toys all mark a striking difference between earlier generations. Franchises such as Pokémon or Harry Potter are the subject of intense discussion about the consequences of commercialization. Debates over Internet privacy, filtering, and management of intellectual property also mark public concern over how corporate interest exerts control over information, identity, and by extension, learning. These concerns over the commercial interests shaping young people's media engagement go hand in hand with concerns about overuse (often framed in terms of "addiction") as well as inappropriate use, as in the concerns of cyberbullying. Children can be passive recipients of mass produced content online, as well as active participants or perpetrators.

We see growing debate that centers on the more active roles young people are taking in shaping media content and their own media environment. Many have raised concerns about the decline in social norms and standards exemplified by young people's social media use. For example, Sherry Turkle (2011) has argued that teens are turning away from meaningful and embodied social communication with their over-reliance on texting and social media. Other scholars suggest that digital media engagement is tied to declining literacy and reduced capacity for sustained and reflective thought (Baron, 2010; Bauerlein, 2008, Carr, 2010, Greenfield, 2009). Multitasking and distractibility with the advent of new media raise a related set of concerns, and some point to greater stress and loss of focus (Pea et al., 2012). These issues are the subject of much debate. In contrast to these negative views of young people's digital media use, proponents of "digital natives" (Prensky, 2010) and the "digital generation" (Tapscott, 2008) have argued for the highly activated, engaged, and resourceful kinds of learning and literacy young people are gaining with games and online activity.

Regardless of where one stands on these debates, it is clear that the growing diversity and fragmentation of today's media ecology means that young people have a greater range and choices in media and communications. This has led some scholars to argue that we are at risk of a growing equity gap born of media choice; when presented with an abundance of informational options, only some are choosing to engage with academic culture and knowledge (Drotner, Jensen & Schrøder, 2008). Prior (2007) has argued that as media become increasingly personalized and individualized, a balkanization occurs as people gravitate toward sources that exemplify their interests and perspectives. This can lead to a polarization of political discourse, and a growing equity gap between those who have a well-rounded view of public culture and current events, and those who do not. The equalizing effects of mass media and limited choice in the TV-dominant era no longer operate within an individualized social media ecology. Similar dynamics are at play in academic knowledge and literacy.

When young people have an abundance of choice in media and are constantly connected, it becomes more difficult to focus their attention on standardized school subjects less tailored to their interests. Howard Rheingold (2012) has argued that we must actively cultivate skills such as mindfulness and "crap detection" that are keyed to these new realities of the digital and networked world.

The disconnect between classroom learning and the everyday lives and interests of many young people is not new. Buckingham (2007) sees this digital divide between in-school and out-of-school use as "symptomatic of a much broader phenomenon—a widening gap between children's everyday 'life worlds' outside of school and the emphases of many educational systems." Similarly, Collins and Halverson (2009) identify a culture gap between educational systems designed in the industrial age and the emerging learning practices of the knowledge age. They describe how young people are finding opportunities for more customized and opportunistic learning out of school, but many schools are confronting narrowing curricula and a push toward accountability in the form of standardized testing. While households with enriched out-of-school learning and the schools that cater to them may be bridging this gap, many schools are caught in this culture clash between in-school and out-of-school learning and between young people and their elders.

Anxieties over new media's threat to established ways of life have emerged in almost lockstep with the introduction of each new medium since the printing press (Luke, 1989). Moral panics over the supposed loss of tradition, parental authority, and shared values accompanied the introduction of children's comics in the eighteenth century, cinema at the end of the nineteenth, television in the twentieth, and the Internet in the twenty-first century.

Yet risks go hand in hand with opportunities in online participation. The EU Kids Online project has shown that as children use the Internet more and become more digitally literate, opportunities and risks cannot be easily separated. For example, making new friends on the Internet risks contact with unsavory strangers, and online self-expression risks exploitation and compromised privacy (Livingstone, 2008). While early research and policy efforts focused on the effort simply to reduce or eliminate such risks, now we see that this can only be achieved by preventing many potentially valuable online activities (e.g. social networking sites or multiplayer games). Therefore, research is now refocusing on the relationship between risk and harm, recognizing that not all risk results in harm and, crucially, a certain amount of risk is vital for building resilience and learning to cope (Schoon, 2006).

The EU Kids Online project also identified the particular fascination of young teenagers with "risky opportunities," precisely pushing the boundaries of competence, social acceptability and self-expression (Livingstone, Haddon, Görzig and Ólafsson,

2011). Since children and young people explore the digital world with different eyes from those of many anxious adults (especially their parents and teachers), understanding youthful perspectives on digital networking opportunities is crucial if we are to enable connected learning. We turn now to describing an approach to learning that we believe honors these youth perspectives, addressing the risks of today's new media by building and diversifying educational opportunity and intergenerational connection.

PART 2:

CONNECTED LEARNING

To "learn from experience" is to make a backward and forward connection between what we do to things and what we enjoy or suffer from things in consequence. Under such conditions, doing becomes a trying; an experiment with the world to find out what it is like; the undergoing becomes instruction—discovery of the connection of things.

John Dewey "Democracy in Education," 1916

Today's economic, social, and technological trends pose a host of challenges for those seeking to transform educational systems to create opportunities for more youth. While these challenges are daunting, particularly given the economic and demographic outlook, we do see unique opportunities for change that accompany the shift to digital and networked media. The trends we are seeing in today's new media environment present new risks, but also unprecedented opportunities in making interest-driven, engaging, and meaningful learning accessible to more young people. In considering the role of technology in social change, we draw from longstanding efforts to mobilize technology in the service of education. Unlike many approaches to educational technology, however, connected learning is defined not by particular technologies, techniques, or institutional context but by a set of values, an orientation to social change, and a philosophy of learning.

Although we do not focus primarily on the formal educational system in our work, we see our agenda as complementary with many progressive and equity-oriented reform efforts in school and policy arenas. In many ways, the connected learning approach is part of a longstanding tradition in progressive education and research on informal learning that has stressed the importance of civic engagement, connecting schools with the wider world, and the value of hands-on and social learning. Today's technologies offer us the ability to pursue these progressive goals in new ways through purposeful integration of tools for social connection, creation, and linking the classroom, community and home.

Connected learning also draws from educational efforts that value and elevate the culture and identity of non-dominant children and youth. These include youth development and media programs, culturally relevant education, and civic and participatory learning that draws from and supports the interests and voices of diverse youth and their communities. Rather than cater exclusively to the existing standards and norms of a dominant society and culture, these approaches seek to build new forms of value and capacity that come from diverse cultures and communities.

Our approach differs, however, from many approaches in educational technology and reform in some important ways. The dominant focus in educational technology is lowering the costs of content delivery, improving instruction, and optimizing assessment for existing metrics, standards, and accountabilities. These are laudable and important goals that we believe need to be accompanied by approaches that expand and diversify the targets and pathways of education. We recognize the importance of foundational skills and knowledge, but we also see the challenges of education as broader than meeting uniform content standards.

In an environment where good jobs are scarce and traditional career pathways serve a shrinking and privileged minority, optimizing existing educational pathways, assessments, and accountability systems will not serve an equity agenda on its own.

"Leveling the playing field" or offering more traditional pathways to less advantaged children may help a few lucky individuals. It fails to address inequity at a systemic level, however, upping the ante in an arms race where more privileged families look for advantage outside of the public school system. Rather than frame our task as improving individual competitiveness, we feel it is important to address the overall health of communities and learning writ large, centering our values on equity, full participation and collective contribution.

To achieve such a vision we believe education must continue to deliver on foundational literacies and knowledge, while also diversifying and multiplying entry points and pathways to opportunity and meaningful participation in society. This becomes particularly important as young people enter adolescence and begin to specialize in their interests and seek ways of contributing to the adult world. By meaningful participation, we mean more than preparing young people for competition in the formal labor market. Rather, as progressives have argued for generations, the functions of schooling should be to prepare young people for contributing and participating in social life, which includes economic activity but also civil society, family, and community. As we have described in the previous section, this approach towards building opportunity and capacity is particularly critical given the current economic and job realities that young people face.

Our connected learning agenda involves building more diverse entry points and pathways to opportunity as an avenue to this broader reform and equity agenda, by leveraging the affordances of new media. We see new media, particularly as it is linked to youth-centered interests and community contribution, as providing new entry points into learning, opportunity, achievement, and civic participation. As a society we are clearly early in exploring these new pathways. Learners like Clarissa and Snafu-Dave are early indicators of the potential to see learning and education as a much more flexible and networked enterprise that happens as part of participation in diverse forms of culture and community. We believe that the time is ripe for targeted research, design, policies, and program development that seek to better understand and amplify this potential.

Connected learning is guided and defined by this broader social vision, where the functions of education are better integrated and serve the interests and needs of non-dominant young people and their communities. It is less a "new" approach to learning than it is an ongoing effort to draw linkages between existing approaches that share a set of core values and goals. We will describe particular technologies, learning, design and research approaches that we believe align with these values, and could be supported and amplified in ways that support this broader vision of educational reform. Because of this focus on connecting and amplifying the existing capacity of diverse networks, connected learning will necessarily always be a work in progress.

CASE STUDY 4

BOSS LEVEL AT QUEST TO LEARN: CONNECTED LEARNING IN A PUBLIC SCHOOL

A toy replica of a 1950s pickup truck with a 100-gram cast iron weight in its bed races down a wooden plank and crashes into an upright textbook that rests precariously on the edge of a high stool. The book wobbles and then topples several feet before smacking the floor with a loud slap. As it falls, the book collides with the raised end of a yardstick whose middle rests over a makeshift fulcrum, creating a seesaw-like lever. The impact catapults a small bottle of hand-sanitizer a few inches into the air before falling and bouncing on the floor. "Hmm," says the 11-year-old student who released the car. The student and her classmates have been challenged to build a Rube Goldberg machine—a complex machine that performs a simple task—that can dispense hand sanitizer from a bottle with a pump-top. One of the student's teammates suggests, "Let's try a larger stool."

This is Boss Level, a special two-week period that takes place at the end of each trimester at Quest to Learn, a 6th- through 12th-grade public school that opened in Manhattan in the fall of 2009. Quest is the first school in the country to organize its entire curriculum to be "game-like." It is also attempting to incorporate many of the connected learning principles into an urban public school. Boss Levels are the times during the school year when these principles are most fully realized. During Boss Level, regular classes are suspended, classrooms

Students working on their Rube Goldberg Machine.

are rearranged into workspaces, teachers fall into the background, and students work in small teams on a single "challenge" that culminates in a showcase and party for the school's educators, staff, and family members. In addition to Rube Goldberg machines, Quest educators have challenged students to write and perform short plays based on fairy tales, to design and orchestrate a series of outdoor games for an end-of-the-year field day, to research and construct a travel website featuring three NYC neighborhoods, to build a sculpture from recycled materials, and so forth. In each case, Boss Levels attempt to weave together connected learning principles with the strictures of school-based practices.

Peer Supported

Students drive activity during Boss Levels more than at any other time during the year. While educators put students onto teams and define the challenges, students take the lead in designing, discovering, and evaluating possible solutions. Students provide each other with ongoing

CASE STUDY 4

BOSS LEVEL AT QUEST TO LEARN

Students work on a platform for their Rube Goldberg Machine.

feedback about each other's ideas and work styles. They engage in delicate, and often difficult, negotiations over what their team should try next, who should do what, and who can tell or ask someone else to do something. While failure is commonplace, and while conflicts sometimes arise, educators resist intervening extensively. In general, students are active and highly engaged, and the classroom is often vibrant and boisterous.

Interest Powered

While Quest educators define Boss Level challenges, students have extensive opportunities for connecting Boss Level projects to their own interests, many of which are dissociated from conventional schooling practices. For example, when a Boss Level challenge asked students to write, stage, and perform short plays based on fairy tales, students wove numerous interests and cultural forms from their out-of-school lives into the productions. One scene took place in a medieval coffee shop called "Moonbucks"; plots and characters drew inspiration from popular books, video games, music, and movies; several students with an interest in fashion worked on costumes; a student who was enrolled in an afterschool program for gymnastics helped choreograph stage fights; students who participated in online fan fiction communities worked on scripts; students who were interested in media production helped with recording and mixing sound effects; all students produced daily podcasts that provided updates about their projects to family members. In doing so, Boss Level blurred conventional divisions between education and peer cultures.

CASE STUDY 4

BOSS LEVEL AT QUEST TO LEARN

Academically Oriented

Boss Levels confer academic legitimacy on creative activities that are typically absent or marginalized at conventional schools. By treating Boss Level as the culminating academic experience for every trimester, and by showcasing the students' work to family members and members of the New York City design community, Quest bestows academic legitimacy on forms of work that are not easily measured by standardized assessments. At the same time, Quest attempts to link Boss Level challenges to more widely recognized academic domains and competencies. For example, the Rube Goldberg machine challenge required students to put into practice knowledge about physics and simple machines that they had been learning about over the course of the trimester. Similarly, Boss Levels encourage students to approach design challenges from the perspective of "systems thinking," a twenty-first century literacy that educators emphasize in their instruction throughout the year. So, for instance, when tinkering with a Rube Goldberg machine, or when writing a play, or when designing a game for the field day, educators encouraged students to think of each design challenge in terms of its components, rules, goals, feedback mechanisms, and other aspects of a dynamic system. In doing so, they connect hands-on activity with forms of knowledge that are recognized in various academic and professional contexts.

Production Centered

Boss Level is a time when production and performance are paramount. As already noted, each Boss Level requires students to work together to make something that they do not yet know how to make. Educators encourage students to try numerous ideas and to fail often, noting that each failure offers a learning opportunity that can inform further rounds of iteration. The bulk of each school day is allocated to working on these group productions. Instead of rotating between different academically themed classes every 45 or 90 minutes, students work for several hours at a time on their projects, moving fluidly between intensely focused work and more casual genres of practice, such as messing around. In addition to changing temporal routines, Quest reconfigures its physical space during Boss Level. Desks are moved out of rows and clusters and each team is assigned a dedicated workspace that they retain for the duration of the project. Teams travel to different locations to attend short skills-based workshops, but they always return to their workspaces, and they are allowed to leave their in-progress projects in place at the end of each day. Students from other teams often walk by each other's workspaces and observe and comment on the various productions underway.

Students mixing sound effects for their team's play.

CASE STUDY 4

BOSS LEVEL AT QUEST TO LEARN

Openly Networked

In addition to synthesizing a trimester's worth of schoolwork into a single project, Boss Levels connect school-based practices to resources, institutions, and persons beyond the school's walls. For example, for the fall 2012 trimester, eighth graders chose between several Boss Level projects, each of which was supported by a different NYC cultural institution or expert practitioner from the city. Partner organizations and persons included the MoMA, the Nuyorican Poets Cafe, the Museum of the City of New York, a professional Flamenco dancer, and a Parkour expert. Additionally, family members and educators donate much of the materials—from old magazines, to cardboard tubes, to foam-core—that students use for their projects. Students use the Internet to collect media and research their challenge, and they use digital production tools for prototyping, modeling, and communication. At the finale for each Boss Level, a jury of professional creative practitioners offers feedback and awards prizes for especially noteworthy productions.

Judges announce awards from the Rube Goldberg Machine challenge.

Shared Purpose

As noted above, during Boss Level educators organize students onto teams that they belong to for the duration of the Boss Level. Team members work together on a single project and educators act as advisers that provide assistance rather than didactic instruction. Educators also recruit creative professionals from outside the school to offer feedback and guidance at various stages of the process. While educators evaluate students' individual contributions to Boss Level as part of their summative term assessments, the showcases at the end of Boss Levels focus on group, rather than individual, accomplishment. Teams compete against each other for kudos and awards but they are not ranked against each other according to a single metric. Many challenges also connect to communities of practitioners that share an interest or purpose to the ones being addressed by the challenge, whether those persons are environmental activists, digital artist, actors, designers, or animators.

Challenges and Opportunities

Realizing connected learning principles in a public school setting is not without its challenges. For one, Boss Levels can be seen as taking time away from preparing for state tests. While Quest hopes its students will score highly on tests, its students are evaluated against students who attend schools that place greater emphasis on testing. If the school cannot produce competitive test scores, many families will not apply to the school and the Department of Education could force it to change its leadership or even close its doors. Given these realities, Quest is under constant pressure to scale back on less canonical offerings such as Boss Level, and it has had to diminish the number and duration of Boss Levels as it has matured.

CASE STUDY 4

BOSS LEVEL AT QUEST TO LEARN

A team explains its Rube Goldberg machine at the Boss Level Finale.

Additionally, the school has had to educate some parents about the educational value of experiences like Boss Level. Less-privileged families, in particular, have pushed the school to focus more on canonical pedagogic offerings, in part because their children's options in the NYC school system largely depend on test scores. Further, families from various backgrounds have expressed unease with some of the student-centered aspects of Boss Level. The frenetic, messy, and often noisy character of Boss Levels can appear to some as chaotic and undisciplined rather than as engaging and invigorating. Quest educators have responded to these challenges by attempting to educate parents about the forms of learning supported by Boss Levels, and over time many parents have come to see, and even celebrate, Boss Levels as important and unique educational opportunities. Educators have also had to make Boss Levels more structured and adult-managed as the school has matured, partly to ease parental concerns.

Despite these challenges, Boss Levels offer an encouraging example of how connected learning principles can be integrated into public schooling. Unlike most canonical schooling practices, Boss Levels organize students' activity around a shared purpose, and they provide students with numerous opportunities for active and creative problem solving. Students, rather than educators, drive the process. Solutions are not defined beforehand and resources are not bound by the school's walls. As a result, students have the opportunity to participate in the challenging, messy, collaborative, and open-ended processes that we believe characterize connected learning at its best.

An Ecological and Networked Approach to Social Change

How do we approach these ambitious goals? We begin from the understanding that social change is not simply technologically or market led. The Internet is not by itself undermining privacy or family life, nor is television responsible for the supposed drop in hours spent by children reading. We must give up on the beguiling idea that technological changes either cause or resolve social problems. Redesigning or regulating particular media cannot on its own revitalize education or youth participation or resolve the difficulties of modern family life. Instead, it is important to recognize that the media are themselves a product of society, and thus are shaped by fundamental processes of social change. The same technologies can be taken up for progressive or more traditional educational goals.

In examining the role of new media in young people's lives, we use the metaphor of an "ecology" to stress these broader contexts and their interconnection. The notion of ecology refers to the complex character of the spaces in which children develop. It also positions the child in meanings, practices, structures, and institutions contextualized by family, neighborhood, culture, and global contexts (Barron, 2006; Bronfenbrenner, 1979; Horst, Herr-Stephenson and Robinson, 2010). Importantly, the concept of ecology captures the interdependence and co-constituted nature of actor and context. The ecological metaphor is tied to our approach to young people, which recognizes how they are embedded in what Weisner (2002) has described as "ecological-cultural" context and everyday routines organized by the interrelated contexts of peer relations, family, and school. Our view also aligns with work in the sociology of childhood that examines how young people shape and are shaped within broader social and cultural dynamics (Corsaro, 1997; Fass, 2006; James, Jenks and Prout, 1998). This focuses on children and young people's agency, but recognizes also how this is constrained by structures of family, school, community, religion, commerce and so forth (Sefton-Green, 2004).

Lawrence Cremin (1977) applies an ecological viewpoint to the history of education in the U.S.:

> Individual institutions and individual variables are important, to be sure; but it is the ways in which they pattern themselves and relate to one another that give them their educational significance, and in ways in which their outcomes confirm, complement, or contradict one another that determine their educational effects (128).

Building from this ecological perspective, Cremin describes how historically the process of learning in the United States was "owned" by a whole host of institutions that made up the world of a young person, from home to church, school, and community. Today, while these institutions are all, to differing degrees, still involved in

the education of youth, the learning happening in school and other contexts is often disconnected.

All of these sites of learning are increasingly underpinned by digital media technologies. For today's youth, life without the Internet or cell phones is already unimaginable. In their terms, and for many adults also, the media ecology does not just describe the world of leisure and entertainment, but it has become infrastructural, to use Star and Ruhleder's (1996) term. Like the distribution of water or electricity, the media and communication system underpins the spheres of work, education and commerce in ways that we increasingly take for granted. The ecological metaphor illuminates our understanding of the digital media landscape by focusing not on the learning potential of individual media, but, instead, on how young people's actions, individually and collectively, intersect with key institutions in their lives and a wider array of media and communication possibilities open to them.

Educational technology and reform efforts are situated within this ecology of institutional constraints and possibilities. Just as in the eras of educational video, computer assisted instruction, and edutainment, today's technologies and techniques have been met with much hope and optimism. Open educational content, personalized learning systems, game-like learning, massively open online courses, and blended learning offers us important and accessible new tools and techniques to reinvigorate learning. Without a broader vision of social change however, new technologies will only serve to reinforce existing institutional goals and forms of social inequity. Many prior attempts to mobilize technology in the service of educational reform have failed because interventions have focused narrowly on the deployment of particular media or technologies, without considering broader social, political, or economic conditions (Ito, 2009; Tyack and Cuban, 1995; Cuban, 2003).

Unlike efforts at educational change that focus on technology deployment or institutional reform, connected learning takes a networked approach to social change that aligns with our ecological perspective. We believe that systemic shift requires linked efforts across different sites of learning, and that our best hope for educational change lies in connecting like-minded reform efforts across sectors of home, popular culture, technology, and education. Diverse youth, educators, parents, and technology makers coming together around a shared vision of learning can achieve "network effects" where more value is created when the number and diversity of participants are increased (Liebowitz and Margolis, 1994).

Today's networked technologies offer us a unique opportunity to build these open and scalable networks in the service of educational reform in ways that can complement institutionally driven change. Our connected learning approach is an effort to contribute to these emerging change efforts by looking ecologically across all sites of

learning—including homes, schools, neighborhoods, popular culture, online communities, and diverse learning institutions—by articulating an evolving set of learning and design principles and pursuing a research and reform agenda guided by these principles. We draw from and build on a large body of efforts in learning research, technology innovation, and the design of educational environments. We turn now to describing these approaches to learning, technology, and design that inform and define connected learning.

Our Learning Approach

Connected learning is socially embedded, interest-driven, and oriented toward expanding educational, economic or political opportunity. It is realized when a young person is able to pursue a personal interest or passion with the support of friends and caring adults, and is in turn able to link this learning and interest to academic achievement, career success or civic engagement. Take the story of Tal from her sixth grade year at the Quest to Learn (Q2L) middle school **(see Case Studies 4 and 5)**. Tal was a player of the game, Minecraft, where players can build together in a networked online world. She found support for expanding her interest in Minecraft at Q2L, an innovative new school that builds on young people's interest in games through a quest and inquiry-based pedagogy. Together with her cousin, another Minecraft player who attends Q2L, and with support of adults, Tal was able to start a Minecraft club server at school, and soon they were producing plays in the Minecraft world they built and sharing their Minecraft-inspired stories in class and in their online newspaper. Tal's contributions have in turn shaped the collective contexts of the afterschool club, the school culture, as well as enriching the online communities surrounding Minecraft.

We have observed processes of connected learning among engaged learners like Tal when they are supported by progressive educational institutions like Q2L, engaged families, and rich online resources and communities. By drawing on the emerging interests of youth and the capacities of a high functioning interest community and platform like Minecraft, Q2L provides key adult-driven and institutional supports for connecting interests to academic subjects. Public schools like Q2L have an important role to play in broadening access to connected learning, providing opportunities and guidance for young people to connect their social and recreational learning to academic subjects and prospects. The focus of our research and design agenda is to understand how, guided by a strong educational reform approach, new media can scale, diversify, and expand the reach of these connected learning experiences and environments in order to advance the cause of educational and social equity.

We draw from approaches to learning—often called sociocultural, cultural historical, social constructivist, or situated approaches—that stress how learning and

development is embedded within social relationships and cultural contexts. This body of work is grounded in an understanding of people's everyday activities rather than focusing exclusively on formal educational contexts and academic subjects. The emphasis is on the ways psychological processes emerge through practical activities that are mediated by culture and are part of longer histories (Cole 1998; Vygotsky 1978). This orientation contrasts with approaches to learning, most notably behaviorism, that focus on external and often standardized inputs and rewards. It also contrasts with many forms of constructivism, which locate the primary driver of learning as internal to the developing child, rather than in the social (and technological) environment.

CASE STUDY 5

TAL: FROM WRITING TO GAMING TO WRITING

Tal is a 6th grader at Quest to Learn who likes to write and draw, and who socializes with a close-knit group of cousins about her same age. One of the cousins goes to the same school and is a sometimes-gamer. His current game of choice is a videogame called Minecraft. Tal's cousin found out about the game from one of the adults that works at his school and quickly fell in love with it. The game is played on a computer and is primarily about creativity and building.

Players can modify the terrain of Minecraft's 3D world in many different ways to build shelters or other enclosures to survive attacks from monsters. The game has some nice strategic components as well. Players have to mine elements like stone, water, various ores, and tree trunks and manage those resources while attending to their hunger and health.

Tal started playing Minecraft at her cousin's house. They decided to help form a Minecraft club at school, and soon many more students had joined. Lunchtime was spent sharing building tips, playing each other's levels, and talking about what they were going to do in the game when they got home. The adult who had originally told them about the game set up a school Minecraft server that the club could access, and the community of players continued to grow and diversify to include younger and older siblings, friends from other schools, parents, and even some teachers.

Tal got the idea to write scripts for her and her friends to film as animated plays in the game from a post on a Minecraft online forum. She got support for doing so from her social studies teacher, who had noticed Tal's interest in creative writing. While the teacher wasn't a Minecraft player herself, she did recognize that the game created a socially rich and creatively driven context for nurturing Tal's writing interests. Tal was allowed to share her Minecraft-inspired stories during class and was interviewed by other students as part of an online newspaper club. The status and recognition she gained from these outlets fed her confidence and supported her burgeoning identity as a creative writer.

Tal started writing more frequently and found that the practice paid off in her writing for class assignments, mostly because her teacher challenged her to develop her own voice, no matter what the topic. She still went to the Minecraft club at school, but usually spent the sessions working on her scripts and getting ideas for new stories from the levels created by other players on the server. By the end of the school year, Tal was writing every day and sharing her work with teachers, family, and peers in the community that had developed around the school's Minecraft server. She also became interested in enrolling in a summer program for writers so that she could continue to write with support over break.

The case of Tal illustrates the ways in which a school can provide the key scaffolds to connect a gaming interest to academic achievement. By providing an afterschool space for exploration of an interest with peers, and drawing this activity into a classroom context, teachers at Quest to Learn provided the connections for Tal to make her Minecraft play a pathway to developing creative writing interests and skills.

We build on sociocultural learning theory and empirical research that has documented learning in varied social and cultural settings, both within school and out of school. Our learning approach is guided by three key findings that have emerged from this body of learning research: 1) a disconnect between classroom and everyday learning, 2) the meaningful nature of learning that is embedded in valued relationships, practice, and culture, and 3) the need for learning contexts that bring together in-school and out-of-school learning and activity.

1. Formal education is often disconnected and lacking in relevance

Classroom ethnographers have documented how school learning is often disconnected from the contexts where young people find meaning and social connection. School subjects are often thought to impart knowledge and skills that will be useful, or will "transfer to" everyday life and future work, but these connections have proven elusive to learning researchers and students alike. In fact, a recent report by the National Academies concluded that "Over a century of research on transfer has yielded little evidence that teaching can develop general cognitive competencies that are transferable to any new discipline, problem or context, in or out of school" (National Research Council, 2012).

Even as classroom learning lacks utility and relevance for many young people, schooling continues to be strongly tied to future life opportunity. As we have noted in the first half of this report, we are seeing an escalating arms race in educational attainment because of the competitive nature of the market for high-quality jobs. In fact, the same National Research Council (2012) report that notes the lack of transferability of school-based knowledge advocates for a continued focus on educational attainment because it is the one factor that strongly influences future opportunity.

As noted earlier, young people in more privileged families are spending growing amounts of time in school-related as well as extra-curricular activities carefully and strategically organized by their parents (Gutiérrez, Izquierdo, Kramer-Sadlik, 2010, Levine, 2006, Pope, 2001). Although structured, competitive, and specialized learning activities are tied to future life opportunity, they can crowd out time for other kinds of meaningful learning and social development. Some evidence is emerging that "overscheduled" young people are suffering disproportionately from psychological distress and lack of motivation (Pope, 2001). Getzels and Csikszentmihalyi (1976) noted several decades ago, participation in tightly organized and managed activities leaves little room for problem-finding and creativity. The Digital Youth study likewise found that young people required a certain amount of autonomy and unstructured time to "mess around" online in order to explore knowledge and become self-directed learners (Ito et al., 2009). In other words, an over-emphasis on structured education and individual competitiveness can rob young people of meaningful social participation and the capacity for self-directed and open-ended learning and inquiry.

2. Learning is meaningful when it is part of valued relationships, shared practice, culture, and identity

By contrast, research in settings where formal schooling has not been prevalent has documented learning that happens as part of work, social interaction, and the ongoing life of communities (Greenfield, 2004; Lave, 1988; Rogoff, 2003; Scribner & Cole, 1973). The findings from this body of work parallel research on lifelong learning, examining how adults reconceptualize and reflect on earlier educational experiences (Edwards, Biesta and Thorpe, 2009; Holland et al., 1998; Levinson et al., 1996). The knowledge and skills people acquire in these settings have a highly positive value to participants because they are linked to practices and valued relationships in which learning is not the primary reason for engagement. In other words, learning is highly relational and tied to shared purpose and activity. Here learning can be understood as changing participation in cultural activity rather than an endeavor sequestered from everyday social life (Rogoff, 2003; Lave, 1988). This cross-cultural work on informal learning has helped us recognize learning that happens within the flow of everyday social life, work, and other kinds of purposeful activity.

We understand from this body of work that when young people are learning with peers and adults, pursuing shared interests and goals, the learning is both meaningful and resilient. What we seek to investigate is the specific supports and mechanisms that make these forms of learning effective, and how we can tie these insights to an agenda for educational design and reform. What are the entryways and pathways that young people need to access to arrive at connected learning? What are key supports along the way that young people need in order to continue along these pathways? How can we measure the outcomes of these connected learning experiences? Which outcomes are tied to opportunity and achievement in other contexts and later in life? The connected learning framework is an effort to get more specific on the supports and outcomes of learning embedded in joint activity and shared purpose in order to inform a design and reform agenda.

3. Young people need connection and translation between in-school and out-of-school learning

Based on the prior research in both in-school and out-of-school settings, we have arrived at a starting hypothesis for design and intervention that centers on building stronger connections between different spheres of learning. Connected learning posits that by connecting and translating between in-school and out-of-school learning, we can guide more young people to engaging, resilient, and useful learning that will help them become effective contributors and participants in adult society. We also believe that networked and digital technologies have an important role to play in building these sites of connection and translation.

In line with ongoing critiques of the concept of "transfer," we do not believe that the goal of educational environments is to impart "generalized" skills and knowledge that will be subsequently applied to work or further education (Beach, 1999; Bransford & Schwartz, 2001; Dyson, 1999; Lave, 2011). As Vygotsky (1978) has noted, concepts form when everyday and scientific knowledge grow into one another. An ecological approach to learning means that we don't believe knowledge can be easily uprooted and transplanted between contexts and practices. Instead, we emphasize horizontal knowledge and the connections across domains of experience in and out of school (Pacheco, 2012). Within this approach, learning is oriented toward shared practices that emerge from youths' repertoire of practices developed in the horizontal movement and flow as youth move across everyday settings. We understand development as the acquisition and expansion of a cultural toolkit based on involvement in a range of specific cultural communities.

Our hypothesis is that in order to develop these cross-cutting repertoires of practice, young people need concrete and sustained social networks, relationships, institutional linkages, shared activities and communication infrastructures that connect their social, academic, and interest-driven learning. It is not enough for young people to have knowledge "in their head" and expect that they can apply it appropriately and effectively in varied settings on their own. They need caring adults, supportive peers, shared cultural references, and authentic ways of contributing to shared practices in order to mobilize their skills and knowledge. In contrast to the voluminous literature and research on cognitive and individual models of transfer, there has been very little work that looks more ecologically at the relational, infrastructural, and institutional settings that undergird effective translation and transfer between formal instruction and varied practices. The connected learning approach is an effort to propose a proactive research and design agenda that addresses this gap.

Connected Learning Outcomes

The issue of outcomes is often at the forefront of concerns for educational equity and reform. Most commonly, learning outcomes are framed in terms of individual knowledge, skills, competencies, and dispositions. In line with our ecological approach, we see the collective and individual outcomes of connected learning as integrally related to one another. If we are to pursue an approach to educational reform that is about elevating all young people, it is critical that we consider outcomes not only in terms of individual success and competitiveness, but in relation to the health of the groups, communities, and institutions that build and support connected learning environments.

Consider the case of the Harry Potter Alliance (HPA), a network of young activists and Harry Potter fans who mobilize around issues of literacy, equality, and human

rights **(see Case Studies 6 and 7)**. Making use of social media platforms and channels such as Facebook, YouTube, Livestream, and Twitter, the HPA connects young people who are inspired by the civic virtues portrayed in the Harry Potter books, and want to apply them to the real world. Through a national organization and a network of local chapters, the HPA offers young people opportunities to create and share their own media products with like-minded fans, as well as contribute to collective causes, campaigns, and charities. By participating in HPA, young people are contributing to the health and growth of a civic collective, jointly produced stories, and real world social change. At the same time, they are developing individual capacities through leadership, collaboration, self-expression, and exposure to wide-ranging social issues (Kligler-Vilenchik et al., 2012).

Unlike models of learning that center on individual outcomes and competition for limited resources and rewards, HPA exemplifies how connected learning is value-additive, elevating individuals and collectives in an integrated way. When individual HPA participants learn, create good work, and exercise leadership, it increases capacity and value for others in their community and beyond. This is in contrast to most classrooms that center on standardized metrics and individual competitiveness. When young people do well and are well behaved in the classroom, it improves the classroom experience, but it does not elevate culture at large or expand a valuable social network if the activity ends at the classroom walls. Further, when individual competence is assessed based on grades, test scores, and other standardized and summative metrics, one student's success highlights another student's failure. Environments like the HPA, Quest to Learn, or Clarissa's online writing group have a different dynamic because individual growth is tied to collective goals and community development. Conversely, we can expect that high-functioning connected learning environments will embody ample opportunities for individual contribution and development in the service of collective goals.

CASE STUDY 6

THE HARRY POTTER ALLIANCE: CONNECTING FAN INTERESTS AND CIVIC ACTION

By Neta Kligler-Vilenchik & Sangita Shresthova

The Harry Potter Alliance (HPA) is a nonprofit organization, established in 2005 by activist Andrew Slack. Inspired by the student activist organization "Dumbledore's Army" in the Harry Potter narratives, the HPA uses parallels from the fictional content world as an impetus for civic action. It mobilizes young people across the U.S. around issues of literacy, equality, and human rights, and in support of charitable causes.

Participants are predominantly, but not exclusively, Harry Potter Fans. Building mostly on volunteer staff members and a widely dispersed network of local chapters, the HPA has run a diverse set of its own campaigns, as well as supporting the campaigns of other organizations. An example of an ongoing HPA campaign is the annual Accio book drive, where members have donated over 87,000 books to local and international communities. Another successful campaign was Wizard Rock the Vote (Wrock the Vote), where HPA members registered 1100 voters in Harry Potter-themed "Wizard Rock" concerts across the country. An example of a successful partnership was when HPA raised over $123,000 for Partners in Health in Haiti in two weeks, as part of the Helping Haiti Heal campaign, enabling them to send five cargo planes full of medical supplies.

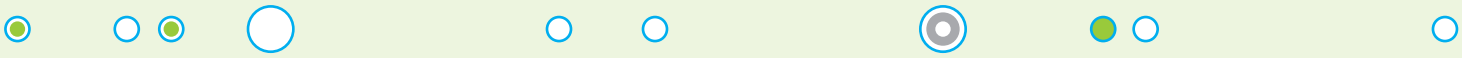
As part of the Civic Paths Project at the University of Southern California, we have been engaging in qualitative research on HPA since 2009, examining the intersections between participatory culture and civic engagement.[6] We consider HPA an example of a Participatory Culture Civics (PCC) organization, which build bridges between cultural and political participation. PCC organizations are rooted within participatory cultures (Jenkins et al., 2009) and build upon their structures, but they overlay an aspect of organizing and mobilizing for explicit civic purposes. As an organization that links young people's interests, peer relations, and civic engagement, HPA also exemplifies the principles of connected learning.

The organization relies on an openly networked structure; it connects fans through campaigns and calls to action, a loosely knit network of chapters, and an online presence that includes discussion forums, a well-designed national website, and a presence on wide ranging social media platforms. There is a core leadership and staff at the national level, but also a constant give and take with local leadership and chapters. As such, HPA includes both explicitly designed elements as well as a responsive structure that draws from the emergent and networked properties of the Harry Potter fandom.

[6] This research was initially supported by Spencer Foundation and currently by the John D. and Catherine T. MacArthur Foundation's Youth & Participatory Politics Network, where it is part of a larger case study conducted by Neta Kligler-Vilenchik on groups building on fan communities to encourage civic engagement. See Kligler-Vilenchik et al. 2012 [http://journal.transformativeworks.org/index.php/twc/article/view/322] for more information.

CASE STUDY 6

THE HARRY POTTER ALLIANCE



Interest Powered

The starting point for HPA is fan interest and engagement. For many participants in HPA, their involvement does not stem primarily from a sense of civic duty or obligation. Instead, members describe being motivated through the interconnection of civic engagement with activities that are fun, social, playful, or emotionally satisfying. One participant in HPA describes how the fun link to Harry Potter "encourages people to do charitable things that they might not otherwise do."

The content of Harry Potter becomes a lens through which young people can understand and engage with social issues. HPA's mission statement is explicit about starting with young people's fan identities as a jumping off point for civic engagement:

Our mission is to empower our members to act like the heroes that they love by acting for a better world. By bringing together fans of blockbuster books, TV shows, movies, and YouTube celebrities we are harnessing the power of popular culture toward making our world a better place. Our goal is to make civic engagement exciting by channeling the entertainment-saturated facets of our culture toward mobilization for deep and lasting social change. (HPA web site)

For HPA, storytelling plays an important role in the process which founder Andrew Slack terms "cultural acupuncture" (Slack, 2010). This refers to using ideas from the culture which are of particular resonance to audiences, and by 'pushing these areas', creating a civic effect. The HPA uses cultural acupuncture by connecting their actions and goals to themes, stories, and characters from the fictional story world in ways that powerfully resonate with fans of the series. Participants are mobilized as "Dumbledore's Army of the real world" in campaigns such as "Not In Harry's Name," which pressures Warner Brothers into using Fair Trade chocolate for its Harry Potter Chocolates. Warner Brothers is framed as a recalcitrant muggle, and HPA participants are encouraged to send them letters, or "video howlers," inspired by the exploding red envelopes sent by wizard parents to their children at Hogwarts.

As one participant describes: "There is this huge fan group that has been moved emotionally by these Harry Potter books and by the idea that the weapon we have is love and that love ultimately is something that can change the world."

Peer Supported

Drawing from fan culture means sharing in the strength of the story and characters, as well as the strength of the existing fan community. The Harry Potter fandom is one of the largest, most networked, sociable, and engaged in the world, and HPA builds on existing fan relationships and forms of sociability. Active fans are already involved in fan clubs, conventions and online discussions, and often have local fan friends who they share their interests with. Fan culture is grounded in a strong peer-to-peer ethic of sharing news and information, creating and commenting on each other's work, and enjoying social time together.

The HPA and individual chapters consciously see themselves not only as organizations with civic goals, but also ones that are constituted on social relationships. HPA mandates that there are at least two chapter organizers to share the burden.

CASE STUDY 6

THE HARRY POTTER ALLIANCE

Chapters often begin with the organizers bringing together a group of their friends, which may or may not yield a large enough initial group. Group activities can often be purely social in nature, like going ice skating or out for hot chocolate. Organizers stress the strength of the social relationships between members, and often friendships extend well beyond the official activities of the group.

Academically Oriented

Although fun and social in nature, involvement in HPA pushes young people to connect their recreational interests to social and political issues that they might not otherwise be familiar with. Because HPA turns its attention to many issues, ranging from net neutrality to fair trade and voter registration, this forces participants to study up in a range of new areas. Almost every campaign is accompanied by a period of learning about the new issue and making sense of it. Chapter leaders will often educate the group on a new issue. Participants also talk about how involvement in HPA helped them see the political messages within Harry Potter. One chapter has gone as far as opening a 6-week study group on "Harry Potter as a tool for social change," discussing links between the narratives and real-world issues. In other words, HPA is a site of hybridization and translation between political and fantasy-centered frames of reference.

HPA builds connection to civic and academic domains in a more concrete way by establishing chapters within high schools and colleges. Establishing a chapter involves writing a constitution, creating a proposed budget, and recruiting teachers and professors as mentors. When students are able to officially register their chapter as a school club, they are rewarded with space and resources, as well as visibility at the school or campus that helps with recruitment. HPA members have been successful in opening more than a hundred chapters across the US and overseas, the majority of which are based in universities and high schools. This success is testament to how organizers have been able to advocate for their fan interest at their schools, and connect their interest-driven activities to recognition in their academic institution.

Openly Networked

The HPA is built around a model of open, networked participation, where fans are invited to participate online, as volunteer staff, and in local chapters. Barriers to initial entry are quite low, and participants can easily climb up the ladder of engagement to take on more responsibility, moving from engaging in online campaigns and discussions, to organizing their own chapters or taking on staff positions at the national organization. All of these roles are visible and transparent online, and all chapters are required to have some form of online presence, even if it is a simple Facebook page. All chapters are featured on the main HPA web site, providing visibility and recognition.

HPA members are generally net savvy, and use a wide range of new media tools. This includes a Ning group for online discussion and organizing, Facebook, Tumblr, Twitter, and a regular vlog on YouTube. The organization also uses Livestream to broadcast its events. The national organization's staffing is centered on these various online outlets, with an evolving set of teams that staff each social media platform, fundraising, chapters, and the like.

In addition to partnering with other civic organizations and their campaigns, the HPA builds

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on partnerships with other groups within Harry Potter fandom to recruit members and increase its reach. The Harry Potter fandom is immense and highly developed, including many different outlets for fan creativity, such as fan conventions, fan fiction, role-playing games, wizard rock concerts featuring Harry Potter-themed songs, theater and musical productions and Quidditch—a new (and growing) sport. Building on these structures of the fandom is what has helped establish the HPA from its onset, and these partnerships are continuously used to further the group's goals. These different venues are used to raise awareness and recruit members to the HPA, and even Harry Potter fans who are not HPA members often know about the organization and may casually engage with it.

Shared Purpose

Shared purpose in HPA is defined by the values put forward by the Harry Potter stories, applied to real life issues. The orientation toward a broader collective purpose is baked into the mission of the organization. Working towards collective goals, combined with the social dimension, is what drives engagement. Many chapter organizers find that the best attended meetings are those that are either mostly social, or those that involve a concrete voluntary activity, such as packing up books for donations, filling candy gift bags for orphans, or registering voters at a wizard rock concert.

During one major campaign, the Chase Community Giving competition, HPA leaders learned that their sense of shared purpose could extend well beyond the Potter fandom. In 2010, the HPA participated in the Chase Community Giving competition, which awarded $250,000 for a non-profit that would garner the largest amount of votes on Facebook. During the competition, the organization focused outward, with the aim of reaching the maximum amount of people who were asked to go on Facebook and vote for the HPA.

Since the Chase Community Giving competition was based on popular vote—where each vote counted the same whether it came from a highly involved member or a random supporter—the HPA focused its energies outward, beyond the Harry Potter fan base and toward anyone who could vote. Reaching out beyond the immediate Harry Potter fan base enabled the organization to widen its reach and its member base, which was exemplified by a sharp increase in requests to open new chapters after the competition. The campaign reinforced the feeling that the idea behind their organization is one that can be widely understood, not just by Harry Potter fans. Just as the Harry Potter fandom has become a focus for intergenerational connection, appreciation of the HPA extends beyond a narrow youth fan base.

Production Centered

Media production is increasingly a central activity of HPA, building on existing fan orientations to making, remaking, and sharing media. Production is often centered on the narrative reworking of Harry Potter stories with civic/activist goals in mind. Though not all HPA members identify as active fans, several of the interviewed members did previously participate in fan-related content production. Media production for HPA also serves more practical goals than fan content production, such as creating chapter web pages. The HPA provides some production support to the chapters, but also encourages local chapters to draw on any expertise that they may have within their local

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group, or to use simple, accessible tools to get their message out. On the national level, the HPA communicates with members through a regular blog, as well as an increasingly popular vlog on YouTube.

HPA-produced media generally has a DIY, fan-made feel. This creates a more equal opportunity for members to contribute their own stories, which are often specifically elicited and invited by the organization. Some examples are included within the Deathly Hallows campaign. In the Wizarding World of Harry Potter theme park at the Universal Orlando Resort, some rides had body size restrictions that angered several fans, leading to the proposal of the "body bind horcrux" as a social project for the HPA. HPA members were invited to create blogs and vlogs in which they denounce harmful body images. Members, mostly but not exclusively female, shared stories about their own experiences with body image issues in an open and candid manner. Some of these stories were directly linked to shared experiences of Harry Potter fans: Members thus used storytelling to not only create awareness to a shared issue (body image) and encourage to action (encouraging healthy behaviors in self and others), but also to create a sense of shared identity by discussing issues pertinent to the community.

Challenges and Opportunities

HPA represents a connected learning environment that uniquely ties together young people's fannish interests with civic action and political awareness. It accomplishes this through storytelling that hybridizes real world and fantasy-based narratives, and building an open network that enables young people to connect to collective conversations and calls to action. HPA exemplifies the effective use of open, online networks and social media to draw together local, institution-based chapters. It also demonstrates how the connected learning model can support civically-oriented outcomes.

Certain features of the Harry Potter fandom—its intergenerational appeal, its highly networked and mobilized nature, and its orientation towards civic virtue—have made it an ideal source of material and fan energy to drive the mission of HPA. These strengths also point to the challenges that HPA faces as the Harry Potter fandom matures and new fandoms—such as those surrounding Twilight, Glee and The Hunger Games—have captured young people's interests. In response to this changing space of opportunity, HPA has started its Imagine Better project, which brings the HPA approach to other fandoms. They launched their "Hunger is not a game" campaign in tandem with the release of the first Hunger Games movie, in support of the Oxfam GROW campaign against world hunger. The challenge for HPA will be to continue to grow and evolve with the rapidly changing landscape of young people's media engagements. If it is successful in this, Harry Potter Alliance may prove to be an inspiration for youth activism well beyond a specific fan base, providing a model for reaching all youth with a passion for popular culture.

Individual Outcomes

Under the banner of "21st Century skills," educators, policymakers and researchers have been increasingly recognizing the importance of "metacognitive" interpersonal and social skills and competencies that can transcend a specific domain of knowledge and practice. In their summative report, the National Academies Committee on Defining Deeper Learning and 21st Century Skills (2012) concludes that while there is growing interest in what they call "deeper learning" that can transfer between disciplines and contexts, systematic research on these forms of learning and related dispositions is still sparse. They identify key cognitive, interpersonal, and intrapersonal competencies that deserve further research attention. At the level of individual outcomes, our approach is aligned with these efforts to identify and support "deeper learning" that can transfer beyond a specific discipline or content domain. We present the summative charts of 21st Century competencies from the National Academies report as reference. Our ongoing research will investigate the degree to which connected learning experiences result in these forms of deeper learning, which include systems thinking, information literacy, creativity, adaptability, conscientiousness, persistence, and self-regulation.

Clusters of 21st Century Cognitive Competencies

CLUSTER	TERMS USED FOR 21ST CENTURY SKILLS	O*NET SKILLS	MAIN ABILITY/ PERSONALITY FACTOR
Cognitive Processes and Strategies	•Critical thinking •Problem solving •Analysis •Reasoning/argumentation •Interpretation •Decision making •Adaptive learning •Executive function	•System skills •Process skills •Complex problem-solving skills	Main ability: Fluid intelligence (Gf)
Knowledge	•Information literacy (research using evidence and recognizing bias in sources) •Information & communications technology literacy •Oral & written communication •Active listening	Content skills	Main ability: Crystallized intelligence (Gc)
Creativity	•Creativity •Innovation	Complex problem-solving skills (idea generation)	Main ability: General retrieval ability (Gr)

Table 2
21st Century Competencies

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Clusters of 21st Century Intrapersonal Competencies

CLUSTER	TERMS USED FOR 21ST CENTURY SKILLS	O*NET SKILLS	MAIN ABILITY/ PERSONALITY FACTOR
Intellectual Openness	• Flexibility • Adaptability • Artistic & cultural appreciation • Personal and social responsibility (including cultural awareness and competence) • Appreciation for diversity • Continuous learning • Intellectual interest and curiosity	[none]	Personality factor: Openness
Work Ethic/ Conscientiousness	• Initiative • Self-direction • Responsibility • Perseverance • Productivity • Grit • Type 1 self-regulation (metacognitive skills, including forethought, performance, self-reflection) • Professionalism/Ethics • Integrity • Citizenship • Career orientation	[none]	Personality factor: Conscientiousness
Positive Core Self Evaluation	• Type 2 self-regulation: self-monitoring, self-evaluation, self-reinforcement • Physical and psychological health	[none]	Personality factor: Emotional flexibility, opposite end of the continuum from neuroticism

Clusters of 21st Century Intrapersonal Competencies

CLUSTER	TERMS USED FOR 21ST CENTURY SKILLS	O*NET SKILLS	MAIN ABILITY/ PERSONALITY FACTOR
Teamwork and Collaboration	•Communication •Collaboration •Teamwork •Cooperation •Coordination •Interpersonal skills •Empathy/Perspective taking •Trust •Service orientation •Conflict resolution •Negotiation	Social skills	Main personality factor: Agreeableness
Leadership	•Leadership •Responsibility •Assertive communication •Self-presentation •Social influence with others	Social skills (persuasion)	Main personality factor: Extraversion

In addition to these individual competencies that align with a wide range of educational initiatives and approaches, we propose a set of proximal outcomes that are more specific to the interest-driven and connected model: depth and breadth of interests, learning supports, and academic orientation. These can be taken as near-term indicators of the effectiveness of learning environments in instantiating a connected approach. Unlike more traditional knowledge and skills-based outcomes, these kinds of outcomes are rarely the focus of assessments and program evaluations. The link between these proximal outcomes and the more distal outcomes of 21st Century skills is a crucial long-term research priority that needs to be pursued in tandem with the ongoing design, research, and evaluation of connected learning environments.

1. Greater depth and breadth of interests

A central focus of the connected learning model is linking deep "vertical" expertise with horizontal expertise and connection to other cultural domains and practices. We thus expect an outcome of connected learning is a depth and breadth of interests. Palmquist and Crowley (2007) have described how even at very early ages, children can develop "islands of expertise" around topics like dinosaurs and experience a sense of efficacy and identity around an interest that can be shared and displayed to others. Interests are tied not only to expertise and knowledge, but also to "positive feelings, higher values, and deeper knowledge that displays itself in the tendency to reengage voluntarily in interactions over time"(Hofer, 2010).

Although less clearly documented than depth of interests, connected learning experiences should also, by definition, encourage a breadth of interests. Crowley and Jacobs suggest that with effective adult supports, children expand the island and branch out from their specific interest to seek depth of knowledge in different domains (2002). They emphasize the importance of dialog and practices that connect the depth domain to other domains in order to expand a child's thinking and repertoire. This process of building connections to other areas of expertise from the base of an area of deep interest is core to the connected learning model.

2. Peer, adult, and institutional learning supports

Young people who are immersed in connected learning are not pursuing interests in isolation, but in the context of rich social relationships. Therefore, another outcome connected learning aspires to is social capital in areas of interest, expertise, and opportunity. These social supports can include same-aged peers with shared interests, adult peers and mentors, as well as institutional relationships tied to areas of interest and achievement. By pursuing connected learning, young people should become embedded in social networks and communities of interest and expertise that they can call on for help, feedback, and mentorship. These dynamics and outcomes are well documented in case studies of communities of expertise (Gee, 2003; Ito et al., 2009).

Studies of mentorship and the role of caring adults and teachers have also indicated the importance of personal relationships in supporting academic learning and a positive future orientation. Interest-driven activities (whether online or offline) are often intergenerational in nature, including fellow hobbyists, leaders, experts, and mentors of all ages (Ito et al., 2009) in valuable ways. Participation in socially connected, interest-driven learning networks with more expert participants can help young people acquire and refine new thinking skills (Rogoff, 1990; Vygotsky, 1978). Likewise, participation can help young people shape their future identities by broadening the experiences and adult role models on which young people draw to construct their sense of self (Markus & Nurius, 1986; Yates & Youniss, 1996). Indeed, Waterman (1982) has proposed that activities that provide opportunities for discovering special talents and abilities are a primary source through which identity is formed (Waterman, 1982). From this we posit that the development of new peer and adult relationships that are centered on interests is a key proximal outcome of connected learning.

3. Greater academic orientation

Through connected learning, young people are tying their interests and social relationships into academic, civic, and career relevant contexts. It follows that a key indicator of connected learning is a positive disposition to academic subjects, programs, and institutions. This framework is supported by studies that have documented that when school-like knowing and discourse is integrated into the everyday life of families, young people are more likely to do well in school (Varenne and McDermott,

1998). Studies with immigrant children and youth have documented the positive cognitive, social, and educational outcomes of leveraging their linguistic and cultural repertoires across learning environments (Gonzalez, Moll, & Amanti, 2005; Lee, 2007; Moll, Amanti, Neff, & Gonzalez, 1992). Such practices help build connections between school contexts and home cultures and practices, as they foster student engagement and extend students' literacy and other disciplinary learning (Orellana, 2009; Aikenhead and Michell, 2011; McIntyre, Rosebery and Gonzalez, 2001; Pacheco, 2012). The connected learning model seeks to expand on these approaches through the design of environments intended to build more of these connections and leverage students' repertoires.

CASE STUDY 7

ANNA: GIVING BACK TO A FANDOM AND BEYOND

Anna leads a chapter of the Harry Potter Alliance in California. She started reading Harry Potter books when she was 11 and was immediately captivated by the story and characters. She continued to follow the books and movies through her teens and early adulthood. She first learned about HPA during her college years, at a Wizard Rock concert where HPA members were running their "Wrock the Vote" Campaign.

After learning about HPA, Anna registered right away, and started participating as an individual in various campaigns. She describes how HPA linked her imagination of wanting to do "something awesome" that came out of the reading of fantasy and applied it "in such a good way that could appeal to so many people, I remember thinking that was awesome." Starting in high school, Anna had been an active volunteer through a youth group, doing outreach to the homeless and other charities. HPA enabled her to connect her fan interests and her civic activities.

After wishing there was a local HPA chapter for several years, she took the step of starting her own. Currently, she leads a group of 23 members who stay connected online and meet up in person when there is an active campaign or just to socialize. They were active in raising money after the Haiti earthquake, the Accio book drive, Wrock the Vote, and the Deathly Hallows campaigns as well as local community initiatives. She notes that HPA has contributed to her learning about a range of issues and organizations because of all these activities.

Anna says that "being involved in HPA is just one of the most rewarding things ever." She attributes her desire to be a writer to Harry Potter, and her involvement in HPA as a way of "getting out of her shell" as a "super shy" person. "It's a nice way to feel like I am giving back to a fandom that has given a lot to me."

Collective and Societal Outcomes

As we have noted, connected learning aspires to outcomes that are collective as well as individual in nature. If people are pursuing interests and meaningful social relationships in the service of our academic, civic, and workplace institutions, we believe that this will lead to broader communal and societal outcomes: high quality culture and knowledge products, civically-oriented collectives, and diverse and equitable pathways to opportunity. Just as with the proximal individual outcomes we posit, these collective outcomes can be taken as indicators of whether particular learning environments are aligned with the working model of connected learning.

1. High standards for knowledge and creative production

Communities of interest that value and recognize learning and expertise are characterized by high quality culture, knowledge, and innovation. We have seen this in sites like Wikipedia and the growth of open innovation groups such as Innocentive and TopCoder that have collectively identified solutions to thorny scientific and design problems by harnessing the power of open networks (Lakhani, 2008). We have also seen these dynamics in communities of interests like the HPA or the online creative groups that Clarissa, Tal, and Snafu-Dave participated in.

Unlike online spaces and communities that are primarily for social affiliation and hanging out, connected learning environments are centered on networks of interest and expertise that have high standards for good work and credible information. Maintaining high quality in communities centered on peer interaction and open to new learners is challenging but possible, and a growing body of research is identifying the qualities of groups that are able to achieve this (Benkler, 2011; von Hippel, 2005; Ito, 2012; Kow and Nardi, 2010; Lakhani and Wolf, 2005; Leadbeater, 2004; Lessig, 2008; Sotamaa, 2007; Shirky, 2010; Swartz, 2006). The connected learning model posits that one key component of a high functioning interest group is the presence of effective supports and recognition for learning and expertise development. An effective connected learning environment is characterized by a virtuous feedback loop between the individual pursuit of learning and excellence and the quality of the collective cultural and knowledge of the group.

2. Civically-oriented and politically activated collectives

In defining connected learning, we place a high value on participation and contribution to joint activity and to civic and political outcomes. The interest-based participation that drives connected learning is grounded in young people having a stake and a voice in collective activity. Ethnographic case studies have documented how voluntary interest-based participation provides opportunities for young people to contribute to collective and civic goals, even if they are not explicitly political in nature (Gee and Hayes, 2010; Ito, 2012; Thomas and Brown, 2011).

Contribution in interest groups could be considered an act of building a civic collective in its own right but we also see indicators that interest-driven contribution is a gateway to more traditional civic and political engagement. A group like the HPA exemplifies the ways in which involvement in peer activity around an interest area can lead to civic and political engagement. A recent survey of young people's online participation and political engagement found that young people who are engaged in interest-driven activity online are significantly more likely to engage in civic and political activity (Cohen and Kahne, 2012).

3. Diverse and equitable pathways for recognition and contribution

As we have described, a core motivation for the connected learning approach is to promote a more equitable set of entry points and pathways to educational, economic, and political opportunity. Connected learning environments include formal educational institutions as well as diverse forms of peer and popular culture, hobby, arts, and interest groups. Connected learning addresses the issue of societal equity by seeking to expand the range of culture and institutions that we see as entry points and pathways to educational opportunity.

Environments that exemplify connected learning are characterized by low barriers to entry and a multiplicity of roles, ways of participating, and improving and gaining expertise. For example, in the HPA, individuals can participate casually in single campaigns, participate in local chapters, take on leadership of a local chapter, or join the staff of the national organization. By operating in high schools and universities, young people's participation at HPA can be part of their academic career building, just like Tal was able to connect her out-of-school interest in writing to recognition in school. With the proliferation of connected learning environments tied to diverse interests, and to schools, civic organizations, and career opportunities, we can hope for an expansion and diversification of opportunity.

How Do We Achieve These Outcomes?

If we are able to build social contexts that value expert knowledge and skills, embody civic virtues, and welcome contributions of diverse participants, connected learning can elevate society and culture more broadly. When individual and collective dimensions of connected learning are working in tandem, we see the possibility of societal change and educational reform.

Clearly much work needs to be done in order to identify and specify the key supports and outcomes of the connected learning model. Our ongoing research is directed towards this end. Part of our investigation of supports and outcomes must happen through a broad-based empirical agenda that examines the distribution of connected learning opportunities in diverse populations, and seeks to identify and specify outcomes and supports. In addition, we believe it is critical to engage in design research

and experimentation, where we look to educational and other design interventions that embody or seek to instantiate the connected learning model.

In the sections which follow, as a starting point for this kind of design research, we outline a working framework for considering how to identify, build, and support connected learning environments. Rather than center on a top-down design of a specific product, technology or curriculum, connected learning environments are a complex alchemy of designed and emergent elements in a process of experimentation and flux. The frameworks for understanding key components of connected learning environments are presented in this spirit of experimentation and iteration.

Connecting the Spheres of Learning

Table 3
Connecting Three Spheres of Learning

Connected learning knits together three crucial contexts for learning:	
Peer-supported In their everyday exchanges with peers and friends, young people are contributing, sharing and giving feedback in inclusive social experiences that are fluid and highly engaging.	Guiding reflections: Are young people given opportunities to: • Contribute expertise, ideas, and questions? • Share work? • Give feedback to their peers? • Socialize and hang out? • Mess around/play in a social context?
Interest-powered When a subject is personally interesting and relevant, learners achieve much higher-order learning outcomes.	Guiding reflections: • Is the experience centered on participant interest (adult and teen)? • Can young people form groups to explore a facet of this interest? • Are there ways for young people to "lurk" as they discover new interests? • Are there supports for young people to develop expertise around their interest? • Is interest being publicized and celebrated? • Are pathways for mastery in an area of interest made visible for others to see, either within the platform or within connected experiences?
Academically oriented Learners flourish and realize their potential when they can connect their interests and social engagement to academic studies, civic engagement, and career opportunity.	Guiding reflections: • Are mentors present who can help young people to connect their interest/activity to academic/institutional domains? • Are outputs made visible within academic/institutional contexts that have relevance to the adult world? • Do adults celebrate youth participation as academically meaningful and relevant? • Do formal/academic settings provide space/opportunity for engagement with interest?

As we have described, connected learning focuses attention on the spaces of integration and translation between divergent domains of knowledge, culture, and social practice. More specifically, we propose that bringing together and integrating the motivations, content, and abilities from social, interest-driven, and formal educational spheres can expand the reach of meaningful and sustained learning. Connected learning seeks to integrate three spheres of learning that are often disconnected and at war with each other in young people's lives: peer culture, interests, and academic content. For youth who are alienated from formal educational institutions, peer culture and interests can provide alternative avenues into connected learning experiences. Figure 6 illustrates the relationship between young people's existing learning environments and connected learning.

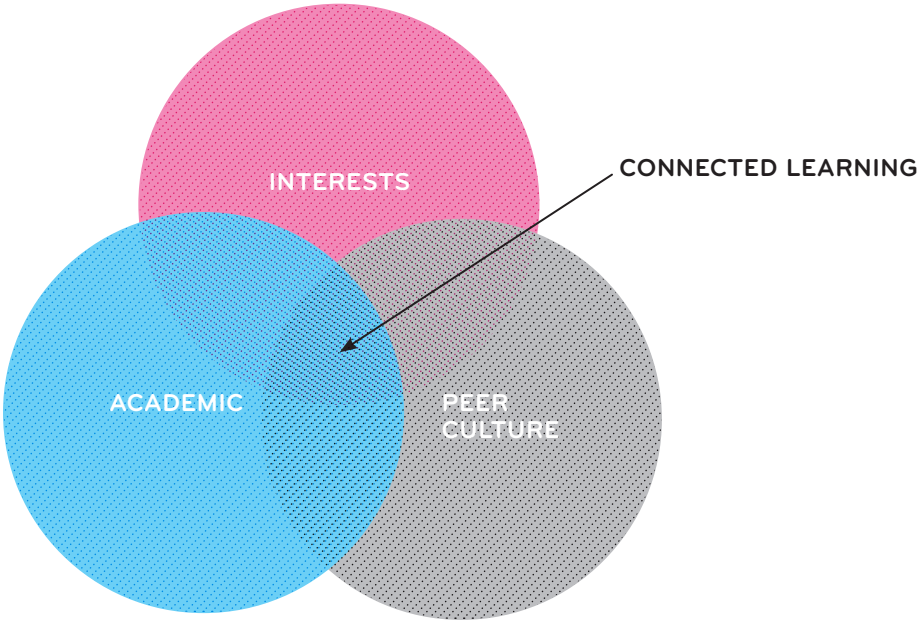

Figure 6
Connecting the Spheres of Learning

Consider the case of the YOUMedia learning lab at the Harold Washington Library in Chicago **(see Case Studies 8 and 9)**. Located on the first floor of the main downtown library, YOUMedia was designed as a space catering to teens and their interests in media production, ranging from music to graphic arts and spoken word. Young people are welcome to drop in to hang out with their friends, eat, play videogames, or check out a laptop. They are also given opportunities to deepen and broaden their interests by mentors and librarians running workshops and creating events and spaces to showcase their work. In this way, YOUMedia Chicago creates an environment that is rich in peer interaction, centered on interests, and connected to academic, career, and civic opportunity. Young people can enter into the culture and activities of YOUMedia

through any of these spheres—by being introduced by friends, through an interest in creative production, or through achievement-oriented aspirations. The environment also seeks to leverage the learning dynamics of all three of these spheres by bringing together personal passions, a drive to achieve, and peer support.

Peer Culture

The common denominators of much of young people's peer culture are status negotiations over popularity, romantic relations, and hanging out with friends. Peer cultures generally map onto the social networks that young people are immersed in through school or community. In online environments, Facebook and personal communication technologies like instant messaging and text messaging support these activities. Social belonging motivates much of this engagement. Learning in this sphere is highly engaged, inclusive, and peer-based, but can be disconnected from academic pursuits and specialized kinds of interests. In school, where young people are brought together based primarily on their age rather than their interests, peer cultures do not necessarily reward specialization, knowledge, and expertise. Other than those engaged in interests highly validated by the school and peer culture such as mainstream sports, kids who are passionate about their interests are often branded as "geeks," "nerds," "freaks," or "dorks."

When peer cultures are centered on interests, however, they can drive knowledge and expertise and can be intergenerational. The tendency to segregate young people into age cohorts has created contexts where peers are often of the same age, but we do not consider peer culture to be necessarily age-specific. Peers can refer more generally to those who associate on equal footing.

Interests

Personal interests include hobbies, sports, academic, and artistic interests. These interests are not innate, but rather are discovered and cultivated within particular social and cultural contexts. Social relationships and institutional supports for interests are diverse and often involve adults and can bridge contexts of home, community, and commercial culture. With the advent of networked media, interests can be supported by platforms such as LiveJournal, Tumblr, Pinterest, and sites devoted and designed for specific interest groups such as DeviantArt, Ravelry, or fantasy sports leagues.

The primary driver of participation for interest-driven activity is a sense of personal affinity, passion, and engagement. Learning in this mode is generally knowledge and expertise-driven, and evaluated by the metrics internal to the specific interest group, which can often be subcultural or quite different from what is valued by local peers or teachers. For example, skateboarders, rap artists, and competitive eSports players have highly engaged forms of achievement and learning that are often at odds with what most same-aged peers and schools value.

Academic

The other major sphere of activity that young people navigate is driven by adult-defined achievement and future-oriented goals, such as academic achievement, civic and political involvement, and cultivation of career relevant skills and recognition. We use the term "academic" to refer to this sphere given that for most young people, their most immediate future-directed goals are primarily success in school. This sphere represents, however, a more general orientation to future success, opportunity, and access to sites of power, what we consider young people's "work" rather than friendship, hobbies, or play.

For some young people this may mean pursuing athletics as an avenue to college and a career, while for others it may mean developing more vocational skills in a local community or industry. The common thread is that key institutions of power and access maintain this sphere. Learning is most commonly organized in a structured, standardized, and institutionalized format, guided by adults, and social relationships center on adults who have the power to offer rewards and recognition. The drivers of participation are not typically intrinsic motivation or social belonging, but structured systems for instruction and assessment.

Many young people experience their learning in the three spheres of interests, peer culture and academic subjects as disconnected, and do not have sufficient exposure or support to explore their interests. Even among those who do, their interests generally lack connection to cross-generational learning, academic subjects, career pathways, and civic and political participation. Whether focused on sports, games, popular media, creative production or the arts, these interest-driven activities are often pursued in relatively self-contained institutions, peer-groups, or communities of practice that do not cut across the divides of home, school, afterschool, and peer culture.

Connected learning, as its name implies, works to connect these spheres more purposefully. The goal is not to fully integrate these spheres of learning—each requires its own autonomous space—but to build connections, hand-offs, and sites of translation in order to reach more young people where they are. Some young people are reached best through their friendships and social relationships, others through their personal interests, and others through their schools and other sites of institutional recognition. By giving equal weight to all of these different sites of learning, we can create more entry points and diversify the pathways towards learning and opportunity.

CASE STUDY 8

YOUMEDIA AT THE HAROLD WASHINGTON LIBRARY: CREATING PATHWAYS FROM INTERESTS TO OPPORTUNITY

YOUMedia is a teen learning space in various libraries, museums, and afterschool spaces throughout the country. We focus on the flagship in the Chicago Public Library's downtown Harold Washington Library Center. YOUMedia is dedicated to the interests of young people, and supported by librarians and mentors with expertise in digital media production.

The space has ample digital production equipment from a sound studio to video cameras to banks of computers with production software. There is also an online social network, iRemix, where young people can share their work and communicate with peers and mentors. YOUmedia welcomes young people engaged in casual social "hanging out" with friends, as well as offering workshops and mentoring in interest areas that stretch knowledge and expertise and the connection to academic achievement and career opportunity. For young people who become highly engaged in the interest-driven activities and mentorship opportunities, YOUMedia exemplifies the principles of connected learning.

Supported by the MacArthur Foundation's Digital Media and Learning Initiative, YOUMedia represents a collaboration between the Chicago Public Library and Digital Youth Network, a digital media literacy and mentoring program. It was designed from the ground up as a new space within the library, and thus represents an educator-led connected learning environment. At the same time, the librarians, mentors, and leadership in the space have been highly responsive to the interests and initiative that the youth bring to the space, as well as insights emerging from research being conducted at the space. Researchers at The University of Chicago Consortium on Chicago School Research (CCSR) and the Learning Networks, Ecologies and Pathways Project at NYU have been conducting research on YOUMedia since the first learning lab opened in the fall of 2009. This case study was developed with the assistance of both of these research teams and YOUMedia staff, mentors, and youth, drawing from examples of the experiences of some of the most active teens.

Interest Powered

YOUMedia programs and mentorship are centered on specific digital media specialties. These programs include music, spoken word, electronic gaming, writing, and design. The specialties were chosen to appeal directly to diverse youth interests and identities. Mentors are chosen for their expertise as artists in these interest areas and their ability to connect with youth. In other words, they embody the culture and identity of the core interests supported in the space. The staff at the site have also actively adapted their programming to respond to the interests that young people bring to the space. For example, after noticing a group of young gamer's interest in reviewing games, a librarian developed and implemented a game review podcast.

Peer Supported

Although the structured activities of the space are centered on geeking out around media production interests, the majority of the space is designed to invite unstructured socializing—in other words, hanging out and messing around. On any given afternoon, dozens of young people are sitting on

CASE STUDY 8

YOUMEDIA AT THE HAROLD WASHINGTON LIBRARY

the comfortable sofas socializing with their friends, eating, and casually playing games with one another. The space welcomes all teens and allows them to bring their own peer activity and diverse interests into the space.

While supporting informal peer interaction, the presence of caring adults in the space insures that young people feel protected from the more negative aspects of their peer relationships. iRemix is similarly a safe space for young people to communicate with one another and adult mentors. Taken together, the space supports a peer culture that young people describe as different from what they experience in their schools and neighborhoods. One participant notes that YOUMedia is "a place for me to hang out with the people that I relate to – nerds." Another notes that her peers in YOUMedia are "a little smarter, a little nicer, a little more accepting… they are more accepting of who you are. They're better at communicating. They're into the same things you are. They like the same things you do" (See CCSR report: Sebring, Brown, Julian, Ehrlich, and Sporte, 2013).

Academically Oriented

YOUMedia mentors are professional and practicing artists who are passionate about their areas of expertise and interest, and make efforts to expose YOUMedia participants to the broader world of activity associated with their interest areas. In order to forge these broader connections, mentors bring in others from their field into the YOUMedia site to give performances and presentations, and support young people in shared projects and competitions that connect them to peers and experts outside of the space. For example, YOUMedia participants have written for the HuffPost Teen section of the Huffington Post website and worked on design for Lady Gaga's Born This Way Foundation. While many young people pursue interests in areas such as hip hop and video games, only a small minority are able to connect these interests to achievement and opportunity in the ways that YOUMedia seeks to enable.

Mentors also function as role models and provide support for academic achievement and career mentoring, including helping young people consider pathways to college with an eye towards longer term career aspirations in their areas of interest and aptitude. One young woman describes how she talks about future plans with the staff at YOUMedia, things like "college essays and prom. […] They help me in how to make my college essay stronger, and you know, they picked out what should be taken out, what should be put in, and stuff like that" (Sebring et al., 2013). Another young person notes that YOUMedia was a key factor in the decision to aspire for college. "I wouldn't have been getting ready for this college opportunity if it had not been for YOUMedia really.[…]I'm going to the Art Institute for audio production. And I was not thinking about audio production eight months ago" (Sebring et al., 2013).

Shared Purpose

In YOUMedia, all of the interest areas are mobilized periodically in "signature projects" that bring mentors and the most active teens together to do shared productions. These include ongoing projects such as the video game podcast, the blog series Library of Games, and the weekly Lyricist Loft open mic sessions. In addition, YOUMedia produces a literary magazine and record label where teen music artists and graphic designers

CASE STUDY 8

YOUMEDIA AT THE HAROLD WASHINGTON LIBRARY

collaboratively publish their work. Mentors also support participation in competitions and projects sponsored in the city such as Chicago's bi-annual One Book, One Chicago program and slam poetry competitions such as Louder Than a Bomb. YOUMedia teens have also mobilized politically, such as when the city was proposing budget cuts to public libraries. All of these projects are moments when adults and teens come together in focused projects, centered on shared purpose that motivate their ongoing learning and inquiry.

Production and Performance

All of the mentor-led activities at YOUMedia are oriented towards media production or performance. Although teens in the space are not always actively engaged in production and performance, there are abundant opportunities and invitations for them to engage. Workshops related to production skills are advertised throughout the space, and both the signature projects and the online site showcase the work of the teens and mentors. The space also provides tools and resources for production, performance, and circulation. These include online instructional context as well as the digital media hardware and software available on site.

Openly Networked

YOUMedia's location in a public library means that it has an open-door policy and is guided by the library's mission of providing open access to information. Within the walls of YOUMedia, activities of young people who are in workshops or deeply engaged in media production are visible to other participants who are hanging out with friends, thus facilitating exposure to new interests. In addition, YOUMedia mentors create opportunities to showcase the achievements of the youth. They feature good work on the iRemix and display it in prominent places in the physical space.

Outside of the walls of the library, the iRemix social network is beginning to help youth stay connected with their YOUMedia peers and mentors from home and school. The site also makes use of Facebook and Tumblr as a way of expanding the visibility and accessibility of its programs. Signature projects also make use of online publishing opportunities to achieve broader visibility. For example, the YOULit literary magazine has gradually been growing a national readership. "We do have readers from outside Chicago and outside YOUMedia. […] Yeah like, we got a ton of page views. It's amazing" (Sebring et al., 2013). The efforts to connect with programs and opportunities in Chicago and nationally are also examples of YOUMedia's openly networked approach.

Challenges and Opportunities

The YOUMedia space at the Harold Washington Library is a demonstration of how cultural and informal learning institutions can provide a safe space for drawing together youth and adults in shared purpose that integrates peer culture, achievement, and interests. As it continues to evolve, the YOUMedia effort has garnered the attention of educators, youth, and media around the country, and even internationally, for providing a living laboratory where the public library is reimagined as a space that is welcoming and engaging to teens, and where opportunities that digital media offer for learning are leveraged. Other libraries, museums, community and cultural institutions are beginning to develop digital media centers that are informed by the YOUMedia model, and the MacArthur Foundation has partnered with

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the Institute for Museum and Library services to support the design of YOUMedia inspired learning labs in other parts of the country.

The uptake and adaptation of aspects of the YOUMedia model in different locales and institutions will offer new challenges as well as opportunities. While the Harold Washington Library version of YOUMedia is well endowed with a dedicated space and mentors, not all YOUMedia labs will have these kinds of resources. For example, in Chicago, YOUMedia centers have opened in three other library branches during the afterschool hours, catering to middle school aged youth. While these labs lack the dedicated space, and mentors spend less time on site than at the Harold Washington library, the location in residential communities has meant they are able to serve younger children who lack the mobility to take part in the downtown library. As the YOUMedia effort continues to grow, the challenge will be to hold onto the crucial learning dynamics and culture of YOUMedia while also adapting to the unique needs of diverse institutions, youth and their communities.

Core Properties and Supports

Environments that can effectively connect these spheres of learning are often characterized by shared purpose, a focus on production, and open networks. In this section we outline a provisional set of properties and associated supports that we hypothesize are characteristic of environments that promote connected learning. In the following section, we dig down even further to identify four guiding design principles that undergird our hypothesis about the qualities of connected learning environments and the types of supports that can accompany them.

But before we get there, think back to the story of Tal and the types of supports that had to be in place to enable her writing across peer, interest, and academic contexts. She needed to have access to online environments like the game Minecraft, which allowed her to actively create, experiment and design **(see Case Study 5)**. The barrier to entry had to be low since she wasn't a hard core gamer and the game had to connect to something she enjoyed doing—in this case, spending time with her cousin. The online environment had to provide ways for her to hang out, socialize, lurk and learn the norms of the game, helped along by the teacher that moderated the school's Minecraft server. Tal had to see examples of what other players were doing with Minecraft—YouTube fit the bill—which gave her models to follow and learn from. More importantly, she had to be able to easily search for, view, and reference these examples as she was working so that she could continually improve her ideas based on a review of the work of others.

Tal had to have access to a laptop, software like iMovie and GarageBand, and ideally support at school for using these tools, since she couldn't count on having access to those resources at home. She had to have a teacher who was open to her interests and willing to help Tal connect these interests to academically relevant activities, like class assignments.

Tal had to discover a shared purpose with other members of the community—the creation of animated plays in Minecraft—and have access to tools and settings in which this shared interest could be made visible. Even more importantly, she needed ways to make her work visible to others across a range of contexts that mattered to her in order to build reputation and status as a writer. Last, she had to have access to learning environments that gave her problems to discover and solve around an existing or cultivated interest.

The part of our model focused on core properties and supports is derived from examples like that of Tal, as well as from our understanding of existing interest-driven practices that have been able to knit together the spheres of peer culture, interests, and academic engagement. For example, chess represents probably the most well-established form of gaming practice that is tied to robust connected learning

environments and experience. Today, chess clubs are supported by both formal national and international leagues, in local community institutions such as schools and libraries, through popular culture and online networks, by a body of research documenting the cognitive benefit of play, by everyday intergenerational and peer play, and by parents who see chess as valuable preparation for future learning. Chess programs within school contexts provide havens for chess geeks to band together within the context of their local peer culture. Further, a robust infrastructure of instruction, competition and cultural recognition drives and rewards young people's expertise in the game, confers status and achievements, and acknowledges chess players as "smart." Word and math games such as Scrabble, crossword puzzles, and Sudoku also occupy a similar cultural terrain as chess, but have a less robust infrastructure for competition, social support, mentorship, and recognition. Connected learning imagines supports of this kind expanding in a diversified and inclusive way, particularly for interest areas that can appeal directly to non-dominant youth.

CASE STUDY 9

FINDING A NEW PATHWAY

By Shaondell Black

YOUMedia is a place for teenagers to come and excel through all forms of media such as music, film, photography and gaming. I stumbled upon YOUMedia when it first opened and was immediately amazed. There were PlayStation 3's, HD televisions, Mac laptops, keyboards and a recording studio. I used YOUMedia as an opportunity to learn how to play the piano, which was something I had always wanted to do. Mike Hawkins, also known as Brother Mike, challenged me to learn harder songs and I did, learning each song he gave me. Towards the end of the summer I became interested in a workshop called The Digital City Planners. It was a video contest and the film had to be based on what could benefit Chicago's youth.

After winning the contest I became more interested in film and started making videos on my own. I made documentaries about relationships, gang violence and even the budget cuts to Chicago's public schools. I started entering contests and making a name for myself at YOUMedia as the "Film Guy." Before I knew it, I changed my career and educational plans altogether. Before coming to YOUMedia I planned on becoming a police officer simply because it guaranteed a job. After coming to YOUMedia I decided to become a filmmaker and chose Columbia as my educational goal. Once I graduated high school I spoke to the mentors of YOUMedia about working as an intern. I wanted to inspire other teens to pursue their creative side and learn about film.

A few months into my internship I started a workshop titled "YouFilm." YouFilm allows teenagers to come and gain experience as a director, equipment manager, or an actor. This was my first workshop in YOUMedia and it was the second largest workshop in the establishment. YouFilm included about 13 teenagers who were consistent, caring and open minded. I made a full transition from a person who attends workshops to one who leads them. Towards the end of the workshop we had a big event where teens brought friends and family to view all the projects they had made. At the event, one of the students introduced me to the podium and spoke of how I inspired her and her friends to pursue their dreams and how happy they were to be included in something so fun. That day went down in history as one of the best days of my life, simply because I got people interested in something that I love doing.

YOUMedia has inspired me to think outside of the box. People usually think that if someone is great, they will do great things. That may be true; however, without inspiration no one can truly be successful. To be successful you need drive and direction. Without YOUMedia I would have the drive but no direction. Without YOUMedia I would've never been inspired to make that first film, to start that first documentary, to lead and do great things. No matter where I am, Paris, Hollywood, New York, I will never be without YOUMedia because it's a part of me now. I would have never gotten a chance to meet people like Bon Jovi and Mark Bradford if it wasn't for this awesome place. But that's my story on YOUMedia.

Spheres of learning—peers, interests, and academic pursuits—are often disconnected and fragmented. This separation is often by design, as when we offer young people a wider breadth of choice in afterschool activities compared to the in-school curriculum, or when peer culture is defined as a space of freedom from adult oversight. As Ole Dreier (2008) has argued, these "separations" are integral to what makes the cohesiveness of a social practice. Connected learning is not an argument for complete integration, but a model for purposeful and selective mediation of spheres of learning in ways that further learning and achievement centered on learner interests, supporting peer relations that are centered on interests, drawing out the academic relevance of interests, and by providing institutional and adult supports for peer engagement. When these supports for mediation and translation are in play, we see the core properties of connected learning environments instantiated: shared purpose across age boundaries, opportunities for production, and an openly networked environment that allows for sharing and publicity across settings (Table 4).

Core properties of connected learning experiences include:		
Production-centered	Digital tools provide opportunities for producing and creating a wide variety of media, knowledge, and cultural content in experimental and active ways.	
	Production-centered experiences can be supported through: • Access to digital production tools • Sanctioned use of remix and curating practices • Circulation and visibility of artifacts	Guiding reflections: • Do young people have access to digital production tools? • Are there structures to support remix of other's work and the curation of community work? • Is work visible/discoverable to others within the environment? Outside of the core site? Are artifacts easily exportable?
Shared purpose	Social media and web-based communities provide unprecedented opportunities for cross-generational and cross-cultural learning and connection to unfold and thrive around common goals and interests.	
	Youth participation around a shared purpose can be powered through things like: • Projects with collective goals • Collaborations and competitions • Cross-generational leadership and ownership	Guiding reflections: • Are activities organized around projects with a shared goal? • Are there opportunities for young people to team and compete, either at individual or group levels? • Does the experience support cross-generational leadership and ownership? Is authority distributed across youth and adult spaces?
Openly networked	Online platforms and digital tools can make learning resources abundant, accessible, and visible across all learner settings.	
	Connected learning experiences support a range of activities that are openly networked, which have these features: • Networks are cross-institutional • Multiple points of entry and outreach • Open assessments, badges, and certifications • Open access and IP	Guiding reflections: • Are groups loosely networked? • Are there easy ways for groups/participants to connect and coordinate action or activity? • Are there multiple points of entry and outreach? • Are tools that signal quality or mastery visible, sharable and easy to access? • Does the platform align with Creative Commons licensing?

Table 4
Core Properties of Connected Learning

Shared Purpose

In contrast to most classroom learning, everyday learning outside of school generally happens as a part of engaging in an activity or goal that is not explicitly educational, whether that is getting food on the table, playing a game, preparing a presentation, or communicating with friends and family. When learning is part of purposeful activity and inquiry, embedded in meaningful social relationships and practices, it is engaging and resilient. Learning and cognition "in the wild" also tends to happen in social and collaborative contexts where individuals work together, share knowledge, and engage

in joint inquiry (Hutchins, 1996). Unlike in classrooms, there is little need to assess and mark individual knowledge and expertise, and it is more important that collective goals are accomplished.

Connected learning environments draw together young people and adults in joint activities that are defined by a shared purpose, goals, or collaborative production (Miell and Littleton, 2004). These common interests and goals become a way of cementing cross-generational connections and propelling meaningful learning and inquiry. This might be in the context of civic and political engagement, producing media work or performance, fan engagement, or competing in a tournament. Formal instruction, workshops, and training may happen in individual contexts and moments disconnected from these joint activities, but the shared purpose creates the collective frame and defines ways of collaborating and competing. Ways of supporting shared purpose include:

Projects with collective goals: Connected learning environments have periodic or ongoing projects that mobilize the community and bring participants together in a shared effort. These are moments when the ongoing learning that participants engage in becomes useful and relevant for a collective enterprise, and where people are motivated to pursue more knowledge, expertise, and inquiry to further the effort.

Collaborations and competitions: The genre of the shared engagement can include both collaborative and competitive activity, as appropriate to the interest area. Gaming and sports are generally motivated by competitive tournaments and games, and real-time collaboration in the form of teamwork. Creative production generally has a more collaborative dimension to it, though contests and competitions can also provide shared purpose.

Cross-generational leadership and ownership: Both young people and adults have opportunities to take leadership and contribute in diverse ways to the shared endeavor. All participants should have a stake in and have influence over the project, regardless of age and expertise. Norms and expectations are collectively maintained.

Production and Performance

In addition to purposeful learning, hands-on learning that comes from actively creating, making, producing, experimenting, remixing, decoding, performing, and designing is engaging and resilient. These are activities when learning becomes tied to self-expression and identity, supported in a group context. Drawing from long-standing traditions in creativity, arts and media education, connected learning environments provide tools and opportunities for learners to produce, circulate, curate, and comment on media. Media creation has become widely accessible through digital

tools, and social media provide unprecedented opportunities for circulating, publicizing, and commenting on media works. Some of the ways the reach and power of production and performance may be extended through digital and networked tools include:

Access to digital production tools: Online and digital tools means that diverse forms of self-expression are abundant, accessible, and often free. Whether it is music, graphic, or performing arts, high quality production tools are rich resources to support diverse forms of self-expression.

Remixing and curating: Digital content isn't just about viewing and consumption, but is uniquely open to appropriation and remix. Digital literacy isn't just about creating "original" content it's also about curation, reframing, sampling, and remixing. These forms of creative expression are often valuable stepping-stones to creativity.

Circulation and visibility: Digital media can be easily uploaded, shared, and commented on. One of the most important affordances of today's digital media is that they offer new contexts for circulation and publicity in the form of blogs, podcasts, and video sharing sites. The opportunity to share and gain audiences for youth work is a crucial opportunity for learning and feedback.

Openly Networked

Today's digital networks provide new opportunities for learners to access a wide range of knowledge and resources across the boundaries of school, home, and afterschool settings. They also allow learners to make their own work and achievements visible across these settings. This can mean accessing online educational resources at home and school, uploading self-produced content to shared learning spaces, or receiving credit for self-directed learning in school or a workplace. These affordances of digital and mobile communication networks greatly expand opportunities to connect learning experiences and outcomes across the oft-fragmented settings of a young person's life. Young people need to be cognizant of privacy risks and appropriate boundaries of communication, while also being encouraged to take advantage of the learning opportunities inherent in open networks. Learning is most resilient when it is linked and reinforced across settings of home, school, peer culture and community.

The infrastructure of connected learning environments is based on principles of openness, accessibility, transparency, and extensibility to keep barriers to entry and participation low. In online space, this means maintaining transparent and open standards that allow for people and institutions to connect and extend infrastructure across diverse settings (home, community, school) and technical platforms (mobile, PC, game devices, traditional media). In physical space, this means maintaining an open-door policy and using online infrastructures to extend beyond physical boundaries to allow

greater access to resources, and connect across institutions and communities. Some ways of leveraging open networks to expand learning opportunity include:

Cross-institutional networks: Social and communication networks in a connected learning environment link out to other learning institutions, schools, popular culture, and home contexts. The online platforms used by the environment should be accessible in all of these contexts, and there should be mechanisms such as feeds and widgets that enable young people to make their activity in the connected learning environment visible (by choice) to networks associated with school, work, other interest groups, or peer culture. Cross-institutional networks can also take the form of projects that are part of coursework, collaborations with other groups and institutions, bringing in visitors, or site visits to other museums, libraries, workplaces, or schools.

Multiple points of entry and outreach: Young people and adult mentors can ideally enter connected learning environments through multiple channels, including those centered on friendship, interests, or schools. The environment should not rely on a single pipeline for participants to learn about and join the group. The opportunities offered by the space can be public and publicized in ways that are attractive and accessible to diverse youth, parents, and educators.

Open assessments, badges, and certifications: Connected learning environments strive to recognize learning and achievement that happens in self-directed, informal, and unstructured contexts, and makes that learning visible and recognizable to parents, educators, workplaces, and learning institutions. This can take the form of resume building, packaging of creative work, or more formalized assessment, badges, and certification that recognize interest-driven learning.

Open access and IP: Resources, tools, and materials should be abundant, accessible and visible across settings and available through open, networked platforms and public-interest policies that protect collective rights to circulate and access knowledge and culture. While most learning environments can't operate completely independent of proprietary intellectual property standards, there should be a robust core of resources that are free for participants to use, distribute, and modify.

Today's social media and web-based communities provide exceptional opportunities for learners, parents, caring adults, teachers, and peers in diverse and specialized areas of interest to engage in shared projects, creative production, and inquiry. We believe that with the right kinds of support, invitations, and infrastructure for connection, these opportunities can become much more commonplace for more young people.

Following are four design principles that we hypothesize underlie our connected learning model, and the core properties discussed above. Broadly speaking, our orientation is both social and technical in nature; it addresses platforms and spaces for learning, the production of learning resources, as well as the creation of social norms and policies. Although it is important to recognize that connected learning experiences do not require new technology, the networked and digital world offers expanded

Table 5.
Guiding Design Principles for Connected Learning

Design principles inform the intentional creation of connected learning environments:	
Everyone can participate	Experiences invite participation and provide many different ways for individuals and groups to contribute.
Learning happens by doing	Learning is experiential and part of the pursuit of meaningful activities and projects.
Challenge is constant	Interest or cultivation of an interest creates both a "need to know" and a "need to share."
Everything is interconnected	Young people are provided with multiple learning contexts for engaging in connected learning—contexts in which they receive immediate feedback on progress, have access to tools for planning and reflection, and are given opportunities for mastery of specialist language and practices.

access to information, communities of interest, and connections across settings, lowering barriers of access to connected learning experiences. We explore this idea more fully in the section that follows.

The principles are interconnected: no single principle does much on its own. It is in the relationships among and between principles that the opportunities for connected learning experiences arise. For example, creating learning experiences where challenge is constant will likely fail miserably if it doesn't also include learning by doing. Creating a program or environment where authority is shared and expertise is distributed, allowing for a broad range of ways to participate, only matters if there are also visible ways for young people to share and exchange expertise and discover resources. Further, the design of connected learning environments is a distributed and evolving enterprise, where educators share authority and ownership with young people, technology makers, and cultural creators in developing shared infrastructures, norms, and practices. The whole is far greater than the sum of its parts.

1. Everyone can participate

Connected learning environments are marked by a shared culture and practice where everyone contributes. This may mean young people contribute different types of expertise. A premium is placed on the creation of experiences that invite participation and provide many different ways for individuals and groups to contribute. There are roles and supports for teachers, mentors, and outside experts to act as translators and connection-builders for learners across domains and contexts. Barriers to entry are low and there are opportunities for participants—especially newbies—to lurk and leech (i.e. observe and borrow). Peer-based exchange, like communication and sharing, are made easy and reciprocal. A diverse set of resources is used to support teaching and mentorship activities.

2. Learning happens by doing

Connected learning has a participatory and experiential dimension. Learning unfolds as young people propose, test, play with, and validate theories about the world, as well as by reflecting on and making sense of these experiences. There is a commitment to make sure learners have access to robust mechanisms for discoverability. Tools and resources are easy to find, diverse, and easily shareable across networks – as are peer-produced tutorials, FAQs, and other materials. Invitations and infrastructure that provide young people with multiple, overlapping opportunities to interact with subject matter experts and mentors are highly valued. Participants are allowed to collaborate in many different ways, as they explore different roles or identities related to an area of interest, or an area in which they want to develop expertise.

3. Challenge is constant

One of the more powerful features of connected learning environments is that they link interest to expertise by creating a need to know, a need to figure out how to create, share, or access something related to their interest. Participants develop expertise in order to access resources that are available but just out of reach. They are motivated to take up the challenge either because the problem context itself is engaging, or because it connects to an existing interest or passion of theirs. "Gates" levels, or other structures that pose challenges or obstacles to overcome offer opportunities for advancement. As learners advance, it furthers their growth if they can encounter a diverse array of opportunities to build social and cultural capital around their progress. Team competitions and collaborations that mix collaborative and competitive elements in the service of problem discovery and solving are important components of a well-designed connected learning environment.

4. Everything is interconnected

Young people in connected learning environments are provided with multiple learning contexts—contexts in which they receive real-time feedback on progress, have access to tools for planning and reflection, and are given opportunities for mastery

of specialist language and practices. Infrastructures that encourage young people to share their work, skill, and knowledge with others across networks, groups, and communities boost learning and social connection. These channels might take the form of online public portfolios, streamed video or podcasts, or public events where work is critiqued and displayed. Other key infrastructures, such as credential and mentor systems, allow young people to make interest, peer, and academic-based identities, status, and achievement visible across settings of home, school, afterschool, and peer group. Roles and supports for teachers, mentors, and outside experts to act as translators and bridge-builders for learners across domains and contexts are essential elements for learning designers and organizers to think about. Offering diverse forms of recognition and assessment – which might take varied forms, including prizes, badges, ranking, ratings, and reviews – can often be very empowering to connected learners. This principle can be well-served by a social network platform.

The theory, research, and design principles we present here are all works in progress. They will continue to be refined, revised, and revisited as part of a collective research and design effort that we hope will be expansive and inclusive in nature. We invite feedback, critique, and participation in this ongoing effort.

Table 6
Guiding Design Principles for Connected Learning

Design principle	Supporting features	Guiding reflections
Everyone can participate	Experiences invite participation and provide many different ways for individuals and groups to contribute. • Low barriers to entry and access; • Varied participation opportunities and ways to contribute; • Diversity in level and type of expertise supported; • Sharing is easy and reciprocal; • Incentives and rewards for learner support; • Professional development programming is integrated.	• Do all participants have a role to play, which allows them to contribute? • Is peer-based exchange like communication and sharing easy and reciprocal? • Are a diverse set of resources to support teaching and mentorship available?
Learning happens by doing	Learning is experiential and part of the pursuit of meaningful activities and projects. • Performance-based and authentic task design; • Easy to use prototyping tools; • Robust mechanisms for search and discoverability; • Low risk "messing around" spaces afford opportunities to see many examples of possible outcomes; • Abundant learning resources made available "just in time"; • Ongoing interaction with experts and mentors; • Varied opportunities to build social capital.	• Are young people involved in hands-on inquiry? • Are young people being challenged to tinker, explore, hypothesize and test assumptions? • Does the learning experience allow participants to show understanding in multiple ways? • Are support resources linked to production opportunities, and easy to find and share? • Do young people have access to mentors who are modeling best practices within the domain?
Challenge is constant	Interest or cultivation of an interest within a context of challenge creates both a "need to know" and a "need to share." Both can be supported through: • Framing activities as challenges with differing degrees of structure; • Embedded infrastructure that enables sharing across individuals, groups, and communities; • Peer sharing and exchange is scaffolded and celebrated; • Structured access to resources; • Infrastructure to support collaborations and competitions.	• Is a "need to know" created by organizing learning around solving complex problems set in engaging contexts? • Does the design of the challenge create both a reason and an opportunity for sharing? • Is a shared interest being pursued via the challenge? • Do young people have opportunities to both team and compete? • Are young people getting feedback on activities in ways that help them "get better" at a task or challenge? • Do young people have access to models for what differing levels of expertise look like within a domain? For example, novice, apprentice, senior, master levels? • Are data being used as a core resource for learning by participants (both youth and adult)?
Everything is interconnected	Young people are provided with multiple learning contexts for engaging in connected learning—contexts in which they receive immediate feedback on progress, have access to tools for planning and reflection, and are given opportunities for mastery of specialist language and practices. • Diverse forms of recognition and assessment are visible across communities; • Youth-level controls for making work public; • Cross-site sharing mechanisms for credentialing, mentoring, and assessment; • Feedback loops reinforce activity across spaces and sites; • Support multiple, overlapping pathways toward mastery.	• Does the experience build in opportunities for authority and expertise to be shared and made reciprocal among learners/mentors/teachers? • Is there a way for young people to share their work, skill, and knowledge with others across networks, groups, and communities? • Do young people have control over when and to whom they share their work? • Are young people allowed to remix and build on the work of others to meet a shared goal? • Are adults helping young people to make connections across contexts and communities?

New Media's Role in Connected Learning

New media amplifies opportunities for connected learning by:	
Fostering engagement and self-expression	Interactive, immersive, and personalized technologies can provide responsive feedback, support a diversity of learning styles and literacy, and pace learning according to individual needs.
Increasing accessibility to knowledge and learning experiences	Through online search, educational resources, and communities of expertise and interest, young people can easily access information and find relationships that support self-directed and interest-driven learning.
Expanding social supports for interests	Through social media, young people can form relationships with peers and caring adults that are centered on interests, expertise, and future opportunity in areas of interest.
Expanding diversity and building capacity	New media networks empower marginalized and non-institutionalized groups and cultures to have voice, mobilize, organize, and build economic capacity.

Figure 7
New Media's Role in Connected Learning

Although connected learning does not require technology, today's digital and networked technologies greatly expand the accessibility and potential reach of connected learning experiences. Our theory of change is based on our analysis of today's economic, social, and technological conditions as well as our analysis of points of opportunity afforded by a changing media ecology. Uses of new media can potentially expand the level of engagement, accessibility, social supports, and diversity of connected learning experiences.

While connected learning shares some things in common with ideas around blended or personalized learning—like inclusion of social media tools, a learner-centered focus, and variation in where and when learning occurs—it differs in several important ways. Connected learning has an explicit focus on learning that is linked across the settings of school, home, peer, and popular culture. Its key innovation is not that it blends online and on-site learning, nor that it might extend school learning into the home or after-school space. Rather, it is in a focus on the creation of social, cultural, and technological supports to enable a young person to link, integrate, and translate their interests across academic, civic, and career-relevant domains. Cross-generational supports can provide the types of translations and triggers that help a young person see how their interests

can be made relevant not just for academic success, but also for participation in civic, political, and professional arenas. In the focus on building learning connections across contexts, connected learning shares a common emphasis with connectivist (Siemens, 2004) approaches and the building of "personal learning networks" (Richardson and Mancabelli, 2011, Nussbaum-Beach, 2011).

Though we recognize the importance of external validation, the engagement and motivation component of connected learning should also not be mistaken for an interest in "gamifying" learning through reward and incentive structures. Much of the discourse around gamification focuses on layering features like points, leaderboards, rankings, and rewards on top of social media environments. These features may be present in some connected learning environments but they are not central to the model, and are relevant only to the extent that they provide the types of social and technological supports that enable translation and connection across domains. For example, badges and achievement systems, when displayed in online spaces, can be a way of making accomplishments in interest-centered activities visible to parents, teachers, and potential employers. Similarly, we see technologies and techniques like massively open online courses (MOOCs), or the flipped classroom as potential tools for connected learning, but not essential features.

Fostering Engagement and Self-Expression

Many have seen in today's new media the potential to support more engaged, creative, and self-directed forms of learning. For example, researchers have suggested that gaming can be a medium for engaged social learning, and that today's complex media environment require new forms of literacy, collaboration, and cognition that are more agile and flexible than those in the era of the book. Digital authoring tools are also tied to a renewed effort to energize media literacy programs by bringing in participatory approaches to creative production and self-expression. Further, the emerging Web 2.0 ecology of blogs, wikis, and other forms of social media are informing new approaches to socially engaged learning. Thomas and Brown (2011) have suggested a "new culture of learning" is emerging that centers on collaborative, adaptive, and demand-driven rather than supply-driven forms of learning.

Beyond the classroom, innovations are tapping this rich potential in digital media as well. As we have described, privileged families are increasingly investing in these enrichment and afterschool activities to boost educational opportunity. Many programs have more recently integrated new media and digital literacies in their purview, and some specifically target non-dominant youth (Kennedy Martin, Barron, Austin, & Pinkard, 2009; Hull and Schultz, 2002; Hull and Katz, 2006; Kirschner, 2007, Morrell, 2007; Soep & Chávez, 2005; Vasquez, 2002). These programs include Youth Radio, a broadcast training program in the San Francisco Bay area (Soep & Chávez, 2005), or the 5th Dimension, which connects community-based organizations with local

colleges to work with young people around design and new media technologies (Cole, 1998; Vasquez, Pease-Alvarez, & Shannon, 1994; Vasquez 2002). YOUmedia builds on these existing efforts in mobilizing new media as a way of supporting youth engagement, initiative and self-expression.

Accessibility to Knowledge and Learning Experiences

Online networks have radically reduced the barriers of access to media and information. Information and communities can be accessed from multiple devices and in diverse locations, including home, school, and community-based institutions. For connected learning, this means the potential to link up the learning happening in the spheres of peer culture, interests, and academic institutions and to provide access to connected learning experiences for young people who may not have robust local institutional or social supports.

For young people with interests that are more specialized or less dominant, it can be challenging to find local supports for their interests. They may be channeled toward accessible and well-established interests such as sports or popular commercial media. Sociologists of teen peer dynamics have long documented the ways in which only certain forms of popular culture and identities are validated within schools, in an often brutal, racially charged, and gender-normative ways (Eckert, 1989; Milner, 2004; Pascoe, 2011; Thorne, 1993). Further, as we have already described, it tends to be privileged families that invest a substantial amount of time and resources in seeking out new interests for their children and supporting them in personalized ways.

The online world is beginning to change these dynamics as resourceful learners such as Clarissa, Tal, and Snafu-Dave can find a wealth of easily accessible learning content and communities that can be tailored to the shape of their interests and the pace of their learning. These online contexts can support intellectual and creative identities and expertise that are not supported in the school curriculum or peer context, as well as foster new opportunities for intergenerational connection and mentoring. While most young people are not taking advantage of these opportunities for connected learning that are potentially at their fingertips, we believe with more guidance, incentives, and better curated resources, this accessibility can translate into more broad based access and engagement.

Expanding Social Supports for Interests

The spread of social media has meant that content and interest areas are surrounded by rich social communities and networked publics (Varnelis, 2008) for sharing, dialogue, and debate. Finding expert communities and peers who share a specialized or niche interest is much easier in an era of online communities, groups on social network sites, user-generated content, and open educational resources. For connected learning, this means that we have the opportunity to support social connection and engagement around wide-ranging forms of interests and expertise.

Henry Jenkins and colleagues (2009) have described the growth of participatory media cultures, where young people can engage in artistic expression and communal activity in a context of peer-based support, feedback, and mentoring. The authors in turn tie participation in these social contexts to important skill-building, such as the ability to appropriate, multitask, collaborate, and network. Participatory and interest-driven online groups, ranging from online video production, fan fiction writing groups, and gaming groups are contexts where young people can connect with peers and mentors who share their passions. They receive feedback and guidance, hone teamwork, and disseminate their work to a broader public (Ito et al., 2009; Thomas & Brown, 2011).

A core part of interest-driven opportunities is the blending of adults, peers, and mentors. Unlike online social platforms like Facebook or text messaging, interest-driven activity (whether online or off-line) is often intergenerational in nature with fellow hobbyists, leaders, experts, and mentors of all ages (Ito et al., 2009). The presence of caring adults who are tied into areas of authentic interest has the potential to reorient a young person's identities, and academic and economic opportunities in the longer term.

We still face substantive challenges in effectively matching learners to the right peer groups and caring adults who can guide interests and learning in productive ways, but today's social media environment offers the potential for supporting access to deep social engagements driven by knowledge and expertise.

Expanding Diversity and Building Capacity

Today's open networks provide a democratizing function where marginalized and non-dominant forms of knowledge, culture, and values gain visibility, and where communities can build capacity in a bottom-up way. The costs of publicity, circulation, and organizing have declined dramatically. These dynamics are key to the equity agenda of connected learning. While today's technology-leveraged connected learning environments are dominated by privileged groups, we see the opportunity to radically expand and diversify the kinds of interests, identities, and communities that are tapped into the connected learning approach.

These entry points, pathways, and linkages need to be developed in ways that respect and support cultures and practice within youth-driven and non-dominant contexts. This means recognizing that these sites can be generative sites of learning, rather than simply places to colonize with mainstream and adult-driven notions of achievement and success. Many of the youth development programs we noted earlier subscribe to these values.

An approach to learning that extends to non-dominant youth and their communities may also help these youth better connect to jobs and economic opportunity. A "new economy" composed of start-ups and local businesses whose capital is not global, or

highly disciplined by financial interests and market imperatives can be one resource. The embryo of such alternatives can now be found in a small-scale, localized, highly networked, sustainable, and socially engaged enterprise sector. The new economy includes activities such as car-sharing, ride-sharing, time banking, barter, gift and re-sale networks, collaborative learning platforms such as Peer 2 Peer university and Hub culture, and new collective funding mechanisms such as Kickstarter. Still, we realize that even these forms of social capital are not equally available to all, thus the need to make the design and implementation of connected learning environments in poorly-resourced communities a real priority.

One component of the new economy is "collaborative," or what we term "connected" consumption, production, and learning (Schor, 2010). These enterprises emphasize product, services, and knowledge-sharing, rather than proprietary ownership. People participate not just for monetary compensation, but also for reputation, to build skills, and to experience satisfaction (Benkler, 2004; Botsman & Rogers, 2010; Schor, 2010). Some of these enterprises have created their own currencies, thereby establishing new sources of value. They are both for-profit and non-profit, and some are co-operatives or social benefit corporations (B-corps). They are often founded by young people in places such as the South Bronx or Cleveland. They are peopled by urban gardeners, open-source techies, and a wide range of people creating new ways to power our society, connect fragmented neighborhoods, and re-use the mountains of low-cost previously purchased goods that flow through our social worlds.

We are interested in the possibilities that these new economic activities have for creating value, opening access, and allowing high-satisfaction, low-cost ways of life for young people who may not be able to find a "creative" job in the formal market. Because these are new enterprises, they may provide a new avenue of opportunity for those with creativity, interest and talent, but who lack connections, formal schooling, and normative cultural capital. When the business-as-usual economy is increasingly failing youth, informal, small-scale alternatives are an intriguing option and a way of connecting the range of opportunities we see in leveraging media engagement, intergenerational learning, and the capacities of non-dominant communities for expanding educational and economic opportunity.

We see an opportunity in the fact that African American and Latino youth are engaging in new media at high rates, and often have high degrees of civic and political awareness tied to the conditions of their local communities (Cohen and Kahne, 2012). We also see an opportunity in the fact that engagement with popular media increasingly crosses class divides. If we can build more contexts that leverage the engagements of non-dominant youth in new media and use that to extend knowledge, expertise, and community engagement, we see cause for optimism.

CONCLUSION

This report has synthesized a body of empirical and design research in order to propose an approach to learning and educational reform that leverages the opportunities afforded by new media in the service of a more equitable educational system. We have examined learning both inside and outside the classroom. Our argument is that for too many young people—particularly our most vulnerable populations of youth—their formal education is disconnected to the other meaningful social contexts in their everyday life, whether that is peer relations, family life, or their work and career aspirations. The connected learning model posits that by focusing educational attention on the links between different spheres of learning—peer culture, interests and academic subjects—we can better support interest-driven and meaningful learning in ways that take advantage of the democratizing potential of digital networks and online resources. We recognize the grim economic conditions and the challenges that educational institutions face, while at the same time seeking to articulate a positive way forward that mitigates rather than exacerbates today's educational inequities.

Online information and social media provide opportunities for radically expanding the entry points and pathways to learning, education, and civic engagement. Further, there is a groundswell of activity in diverse sectors that are taking to these connected learning opportunities, ranging from entrepreneurial young learners, open and online educational initiatives, technology innovations in gaming and other forms of learning media, new forms of activism, and innovative schools and libraries. The connected learning model is an effort at articulating a research and design effort that cuts across the boundaries that have traditionally separated institutions of education, popular culture, home, and community. Connected learning is a work in progress and an invitation to participate in researching, articulating, and building this movement.

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