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Affinity Online

How Connection and Shared Interest Fuel Learning

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1

Introduction

Amy was 17 years old when she was interviewed as part of Pfister’s (2014, 2016) study of Ravelry.com, an online community for knitters and crocheters. Amy is an avid fiber crafter and pattern maker, and she is also active on *Hogwarts at Ravelry*, a group within Ravelry focused on *Harry Potter*–related creations (the case study appears at the end of chapter 4). Amy first learned to crochet from her grandmother and picked up knitting with her sister. Eventually she started to look online for designs and inspiration, and one of her friends introduced her to Ravelry. There she found a wealth of resources, new designs, and kindred spirits, including the subcommunity of *Harry Potter* fans. One of Amy’s hat designs, inspired by a hat in the sixth *Harry Potter* movie, has been “favorited” by 1,100 people and is in the queue of more than 400 people as something that they would like to make. She has begun selling her patterns on Ravelry and, with the support of her father, is planning to launch a blog and expand her business online. Her passion for the fiber arts has even sparked a similar interest in her parents. Her mother has started to crochet, and her father has picked up knitting.

Although Amy’s story has much that is familiar to earlier generations, it is worth noting some important differences. In an earlier era, Amy would have pursued her interest in knitting and crocheting with her family, friends, and possibly eventually a local knitting circle or related group. She may have been able to find others in her Colorado community who could have introduced her to the intricacies of pattern design, but it is unlikely that she would have found a critical mass of knitters who are also *Harry Potter* fans. While she might have designed a *Harry Potter*–inspired hat based on her personal interest, she would not have connected with thousands of other *Harry Potter* fans who also appreciated her design. It is also unlikely that she would have been able to sell and market her designs, given the niche nature of the audience and the lack of distribution channels in local communities. The online affinity network of Ravelry, and opportunities for online distribution and sales, vastly expanded Amy’s ability to pursue a specialized interest, develop expertise, and connect this interest to future opportunities.

Young people such as Amy are growing up in an environment of abundant connection to information, knowledge, and social interaction that offers new opportunities for learning and pursuing interests. Activities such as quickly googling for information, posting questions on specialized online forums, or publishing creative work online are now commonplace. It is easy to forget that it has been less than a decade since these kinds of interactions became widespread in the United States. And while these practices have been spreading with breathtaking speed through the everyday social exchanges of teens, our schools, policies, community institutions, and workplaces have been slower to respond. Many young people are taking to digital tools and networks to connect with communities of interest, gain specialized skills and expertise, and engage in shared projects and causes, but in our research we found relatively few instances of young people connecting these activities to economic opportunities or school. Examples such as Amy's, in which parents are actively supporting the connection between online interests and other opportunities, were relatively rare. The majority of young people we spoke to did not find ways of connecting the learning in their online affinity networks with in-school, civic, or career-relevant opportunities.

These findings are consistent with findings from our prior fieldwork in 2006–2007 for the Digital Youth Project, which cast a wide net in documenting young people's new media practices during the first large wave of social media adoption in the United States. We documented how gaming and social media were becoming primary vehicles for social hanging out, and we also found many examples of young people mobilizing online tools and networks to “geek out” with others online and go deep into areas of interest. While we recognized how these settings were enabling new and powerful forms of interest-driven, informal, and social learning, we also noted how relatively few young people were taking full advantage of the learning potential of digital networks. Even fewer were going on to connect their informal learning to future opportunity in academic, civic, and career-relevant settings. This disconnect between the tremendous opportunity for learning that the online world offers and the relatively low uptake, particularly among less resourced and less tech-savvy young people, is cause for concern (Ito et al. 2013).

Building on the Digital Youth Project, the Leveling Up study was designed to focus on online practices and networks that could bridge the divides between in-school

and out-of-school learning. For our case studies, we sought out online communities that are both highly engaging to youth and also tied to academic, career, and civic practices. We also tried to include interest areas that attracted youth historically underrepresented in technology-related areas, specifically girls and youth with lower socioeconomic status. Our case studies include tech-savvy groups of gamers as well as less stereotypically “geeky” communities, such as knitters and fans of boybands and professional wrestlers. Through these cases, we investigated the supports that connect young people’s interests to opportunity—such as Amy’s father supporting her emerging online business—as well as missed opportunities and disconnects that inhibit this kind of connection and brokering.

To understand the implications of these points of connection and disconnection, we draw from the model of connected learning. Connected learning is a “synthetic model of learning” (Penuel et al. 2016); it both describes a form of meaningful and opportunity-enhancing learning and guides design and policies that expand access to this form of learning. The model grows out of an expanding body of evidence that learning is resilient and meaningful when it is tied to social relationships and cultural identities, and when it spans in-school and out-of-school settings. As a model for design and social change, connected learning focuses on connecting young people’s interests and peer culture to opportunity and recognition in academic, civic, and career-relevant settings. Connected learning strives for equity by embracing the cultural identities of diverse young people, meeting them where they are in their communities of interest, and building points of connection and translation to opportunity in schools, employment, and civic and political institutions.

Connected learning differs from more traditional learning and reform approaches in that it is centered on young people’s interest-driven learning and is agnostic as to the types of relationships and institutions that can support this learning. While teachers and classrooms are critical in the learning of most young people, we also see online communities and communication, and caring adults at home and in their local communities, as valuable supports for learning. By focusing on shared interests and social practices, connected learning draws attention to how social relationships and networks fuel learning and broker opportunities in varied settings, including online

affinity networks.

The Leveling Up study was designed to investigate the role that online affinity networks play, and could potentially play, in connected learning. We are still far from realizing a world where all young people are able to fully engage in learning and opportunities tied to their interests and passions, but we see the potential for online networks' playing a larger role in making this happen. Our decision to focus on practices and communities that embody this potential comes from our commitment to engaged scholarship. This book is an effort to make this potential more visible to educators, parents, and policy and technology makers who are seeking to expand educational opportunity. Our approach is animated by challenges that educators and technology designers face, and in turn, our findings are targeted toward insights that can be of value to researchers as well as practitioners. We orient our questions and methods to problems in practice as much as to scholarly debates.

We ask questions that social scientists have asked of social networks more generally, keyed to problems in educational practice. How do relationships and networks provide social support, information, and connections to opportunity? We probe more specifically into questions of learning and affinity. What kinds of relationships and networks support connected learning? Can online affinity networks help develop social capital, learning, and opportunity? And finally, what kinds of additional relationships and supports do young people need to connect their learning in affinity networks to academic, civic, and career opportunities?

Affinity networks provide a lens through which to deepen our understanding of social networks and learning. Our analysis pivots around how online affinity networks open unique avenues for young people to find “their people”—peers and mentors who share an identity or interest. While sharing similarities with other hobby and sports groups, the relationships that young people develop in online affinity networks differ in important ways from those developed through families, in schools, and in extracurricular activities. They are both more limited—tailored to bonding around a specific interest—and more expansive—more accessible across time and space. They are “intentional” or chosen networks that can result in a strong sense of affiliation and social bonding. These networks are not layered with the same status hierarchies as young people’s school peer

culture, or the accountabilities of teachers and parents. Young people described this aspect of online affinity networks as liberating. Conversely, this means that these networks are thin along measures we traditionally associate with strong social ties, such as face-to-face interaction and institutional embeddedness. The intentional and self-contained aspects of affinity networks are also the features that limit their ability to connect to broader learning and civic and career opportunities. Investigating youth online affinity networks enables us to understand how online networks are changing how young people shape their social relationships, identities, and learning in ways that inform educational practice.

After introducing the broader social, cultural, and economic climate that frames the agenda for this research, we describe the research study. We then describe the conceptual framework for this work and how it organizes the chapters to follow.

The Problem: Technology, Learning, and Equity

In the past decade, as young people have flocked to social media, mobile phones, and digital media of various kinds, we have seen a dramatic rise in media engagement and mediated communication. Between 1999 and 2015, the average number of hours that youth between the ages of 8 and 18 spent a day using media rose from 7.29 to 9 hours (Common Sense 2015). This rise in media engagement has led to concerns about the loss of reflective thought and cognition (Carr 2010), the rise of loneliness (Turkle 2011), declining standards of literacy (Bauerlein 2008), and media addiction. By contrast, proponents of digital learning have argued that these new technologies offer rich new opportunities for learning. Many have argued for the value of particular tools and technologies, such as gaming (McGonigal 2011; Prensky 2010), personalized learning systems, learning analytics, and open online content (Khan 2013).

Both proponents and detractors often focus more on the technology and generalizations about youth than on the specific social, cultural, and institutional contexts of their uptake. Technologies and techniques, however, take on different characteristics depending on the cultural and social settings they are embedded in. History is replete with examples of how new learning technologies have been heralded as the answer to our educational problems, only to become incorporated within existing institutionalized

practices in decidedly nontransformative ways (Cuban 2003; Ito 2009; Rafalow 2016). Even when they are deployed in free and open online settings, we find that new educational technologies tend to amplify existing inequity; the most highly educated are the most likely to adopt these new open-education opportunities (Carfagna 2014; Hansen and Reich 2015; Reich and Ito 2017). Institutionalized practices, in education, entertainment, and the emerging technology landscape, drive the ways in which young people adopt new technology in differentiated ways in their everyday lives.

These studies of educational technology deployment have argued that focusing on the promise of a particular technology, technique, or platform can deflect attention away from deeply rooted and institutionalized forms of stratification and cultural differences. In other words, *access to social, cultural, and economic capital, not access to technology, is what broadens opportunity*. This recognition on its own, however, does not guide the way to positive and equitable roles for technology in learning. Both proponents and critical scholars must focus less on pinning hope and blame on technology, and more on understanding and adapting institutionalized practices and policies, if we are truly concerned about better and more equitable educational futures. The connected learning approach is an effort to move beyond a “boosters versus critics” divide through a shared agenda informed by both critical empirical studies of learning technology and forward-looking theories of change.

A shared progressive agenda for technology and learning is particularly important as informal learning and social networks play an increasingly important role in structuring opportunity for young people growing up in the United States and the Global North. Young people growing up in educated and economically stable families are enjoying a growing abundance of riches in learning opportunities. Not only are they likely to be attending a school that takes full advantage of new technology-enhanced learning, but their parents are spending unprecedented amounts of money on out-of-school enrichment activities. The economic investment of the wealthiest quintile of families has tripled to nearly \$9,000 annually since the 1970s, while the poorest quintile of families’ investments have continued to hover at about \$1,000 annually during these same decades (Duncan and Murnane 2011; see figure 1.1). With the aid of online platforms, privileged and tech-savvy families are more effectively tapping their social

networks to guide their children’s specialized interests, cultivate career opportunities, and develop agency and voice. These out-of-school learning experiences and social connections are particularly important for success in high-tech sectors that put greater emphasis on innovation, problem solving, and hands-on learning (Thomas and Brown 2011; Wagner 2012).

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Figure 1.1. Growth in enrichment expenditures by income quintile.

Source: Duncan, Greg J., and Richard Murnane. Figure 1.6, “Enrichment Expenditures on Children, 1972–2006.” 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 growth of these enrichment gaps argues for investigation into the *specifics* of technologies’ intersection with existing forms of stratification, the variation in how young people engage and learn online, and what our learning institutions can do to address these differences. Why do some young people go online primarily to hang out with existing peers and to browse entertaining YouTube videos, while others dive into online tutorials, courses, and communities of interest that drive more specialized forms of “geeking out” and social organizing? What role can educators, parents, peers, and the developers of online resources play in shaping these dynamics? What kinds of institutional practices, policies, and infrastructures can build stronger connections between youth interests and sites of opportunity, particularly for less privileged groups? What kinds of cultural barriers and assumptions inhibit or facilitate the building of these connections? Only by asking these questions and gaining a greater grasp of how digital learning opportunities intersect with social, cultural, and economic differences can we begin to shape a progressive educational reform agenda keyed to today’s networked world. This book addresses these questions by taking an in-depth look at online affinity networks and how they are connected and disconnected to educational, career, and civic opportunity. We turn now to a discussion of our research and case studies before concluding this introduction with the theoretical and conceptual framing for the chapters to follow.

Situating Our Research

The Leveling Up study, situated within an evolving arc of research that has become more

strategic and impact-focused through time, is one effort within a broader interdisciplinary and collaborative network of research and practice. Here we describe this broader context in relation to our ongoing research and our collaborative network before turning to the specifics of how the case studies were selected, developed, and analyzed.

An Evolving Research Agenda

The Leveling Up project, part of the MacArthur Foundation’s Digital Media and Learning (DML) Initiative and Connected Learning Research Network (CLRN), continues a line of ethnographic inquiry that the DML Initiative has supported since 2005. This research builds on Ito’s prior, more exploratory and descriptive research in the Digital Youth Project, which conducted fieldwork between 2006 and 2007, when teens were flocking to MySpace, when YouTube was just taking off, and before the mobile internet and texting had taken hold in the United States. The Digital Youth Project is the largest ethnographic study of youth new media practices to date, involving 27 researchers, more than 800 interviews, and 5,000 hours of online observation. The study involved a broad scan of youth new media practices, asking foundational questions about how these technologies intersected with peer and romantic relations, family life, creative expression, work, and play. The book that resulted from the Digital Youth Project, *Hanging Out, Messing Around, and Geeking Out* (Ito et al. 2010), was not designed to directly inform educational practice or design. Nonetheless, we were heartened to see how the book inspired educators and designers to create programs and spaces that centered on youth culture and practices (Hernandez and Marroquin 2013; Larson et al. 2013; Seelye 2014).

The Digital Youth Project provided a baseline understanding of how young people are incorporating social media, digital games, and digital media into their everyday lives, but it was clear that more targeted inquiry was needed to inform design, policy, and other practical interventions. In particular, our findings about the highly uneven and often inequitable ways that new media opportunities were taken up gave us cause for concern. The interdisciplinary CLRN was launched in 2012 as an interlinked set of research projects that investigated, from different dimensions and with different methods, the challenges and opportunities in leveraging new media for progressive and

equitable learning. Within the CLRN’s range of projects, the Leveling Up study followed in the footsteps of the Digital Youth Project in continuing in-depth ethnographic investigation of youth new media practices, but with a focus on groups and practices that helped us understand and expand the potential of online networks to support connected learning.

The Leveling Up study represented a different moment in our research priorities, reflecting how new media have spread through various institutions and populations. A growing number of studies were investigating youth new media practices (Black 2008; boyd 2014; Clark 2013; Gee and Hayes 2010; Lange 2007; Watkins 2009), offering a firm base of empirical research. Facebook had taken over as the social media platform of choice, people of all ages had embraced online media for both work and play, and billion-dollar enterprises were going public as a result of these trends. The spread of new media into mainstream life and institutions meant that the online world was no longer just a haven for young people, as we saw in the early years of youth new media adoption, and that online networks and communities were splintering and differentiating in new and unexpected ways. This large-scale adoption of new media created an imperative to investigate the potential connections between young people’s online activities and meaningful opportunities in education, civic institutions, and careers. The rapid incorporation of online networks into civic institutions and commercial enterprises lent urgency to the need for a positive agenda for engaging with youth new media practices.

The aim of the Leveling Up study was to provide in-depth empirical case studies of youth new media practices that could inform policy and design. This goal was fundamentally different from that of the earlier Digital Youth Project research, which sought to decode the underlying patterns of youth new media engagement, what we called “genres of participation.” The new focus on targeted investigation of practices that enhance learning and equity is motivated by the urgency of informing the design and deployment of learning technologies and related programs. As we describe in more detail below, we selected exemplary and exceptional cases that demonstrate how connected learning can support diverse youth interests and learning.

This book combines empirical social scientific inquiry with a social change agenda that advocates for a specific orientation to learning and design. It is an effort at

engaged scholarship grounded in evidence and social scientific inquiry, but undertaken in the service of improving the lives of young people from all walks of life. The study does not seek to be representative of youth online affinity networks, nor is it designed to critique gaps and pitfalls of these online networks, though we see value in and allies in both of these forms of inquiry. Critique of existing practices is necessary but not sufficient; we believe that those of us practicing ethnography and social science also have a role to play in presenting alternatives. At times this means we adopt a voice that is more oriented to design and advocacy than traditional scholarly social scientific discourse, but throughout the book we situate our claims and the nature of our analysis. The study is also situated within our broader interdisciplinary network, which includes a range of approaches and scholarly voices, including critical ethnography, survey research, and design research.

Nodes in a Collaborative Network

The Leveling Up project is part of the broader research agenda of the CLRN, which investigates both the pitfalls and promises of the connected learning agenda. Some CLRN studies conduct research on educator-guided and DML-supported programs explicitly designed to support connected learning (Arum et al., forthcoming; Ching et al. 2015; Larson et al. 2013; Penuel et al. 2015). Other studies investigate a wider range of educational programs in terms of principles of connected learning (Ben-Eliyahu, Rhodes, and Scales 2014; Van Horne et al. 2016). Yet another set of studies looks at settings that are quite distant from the aspirational model of connected learning to identify blind spots and the limits of the model (Livingstone and Sefton-Green 2016; Watkins forthcoming). By focusing on youth-centered online environments with connected learning features, the Leveling Up cases sit between studies centered on environments explicitly designed to support connected learning and studies of more typical environments for youth learning and media engagement.

This book draws from fieldwork and case studies developed by CLRN researchers and researchers from the Youth and Participatory Politics Research Network (YPP). Unlike a more typical edited collection of ethnographic cases, our chapters are written based on cross-case analysis, analyzing themes and topics that have emerged across

projects led by different researchers. Findings from individual cases have been published elsewhere (Korobkova 2014; Kow, Young, and Salen Tekinbaş 2014; Martin 2014; Pfister 2014; Rafalow and Salen Tekinbaş 2014), as have analyses of our data in relation to specific disciplinary debates (Martin 2016; Pfister 2016; Rafalow 2015; Ito, et al. 2018). Readers of this book are introduced to each online affinity network and an exemplary learner in case summaries interspersed throughout, written by the researchers who led on the individual cases. The core chapters pull findings and patterns together to synthesize the empirical findings, theoretical contributions, and implications for practice across the cases. This format is an effort to provide context for each case while also surfacing cross-cutting patterns.

Researchers from the Leveling Up project have collaborated to take the role of lead author for the chapters, drawing material from varied case studies and researchers. This is a co-authored volume rather than an edited collection of work by individual contributors. This orientation to co-authorship and joint analysis aligns with a commitment to collaborative and interdisciplinary analysis that the MacArthur Foundation's DML Initiative has embraced for more than a decade. By funding two research networks, other major research projects, and infrastructures for collaboration, the DML Initiative has nurtured research that draws from a varied qualitative corpus and collaboration with quantitative researchers. This book is one among many efforts in the initiative to synthesize findings across varied research projects, with a specific focus on cross-case analysis of in-depth qualitative research in networked settings.

When examining networked forms of culture and social behavior, researchers have struggled to define research settings that involve networks of both local and more far-flung relationships. Ethnographic researchers have tended to reproduce many of the characteristics of traditional ethnography within online spaces by focusing on communities that enable “deep hanging out” and on the development of strong social ties and shared practices (Geertz 1998). These have included studies of massively multiplayer online games (MMOs) (Nardi 2010; Taylor 2009), virtual worlds (Boellstorff 2008; Kendall 2002), and specialized online forums (Baym 2000; Hine 2000) that are conducted primarily or exclusively online. Other researchers have pursued a hybrid approach that includes online observations and interviews, as well as participation in

physical gatherings and sampling through local communities. For example, in her study of social media use, danah boyd traveled to different parts of the country to interview youth about their social media use rather than recruiting through online means (boyd 2014). In Ito’s study of anime fans, she recruited through both specialized online communities and local fan events (Ito 2012a, 2012b). All of these approaches dip into the stream of highly fluid and networked forms of youth activity that span physical and networked spaces, relationships, and practices.

The collaborative research context of the DML research projects and networks offered an opportunity to take a different approach, to develop a linked set of ethnographic case studies that strategically sample from different populations and forms of social organization. We combine the strengths of in-depth, observational, and contextually attuned case research with a comparative analysis that surfaces patterns and relationships between and within cases. We developed a set of shared protocols so that all the case studies had a common bank of interview and survey questions and shared codes, using both a priori and emergent coding.¹ This cultural and practice-based analysis is still interpretive and qualitative in nature, and it does not rest on the kinds of sampling approaches and claims for representativeness characteristic of quantitative research. But it does offer a way of analyzing patterns of social organization and cultural forms that synthesizes across conventional case-based research. It is a form of qualitative “meta-analysis” that draws findings from across varied case research that has asked similar questions.

Case Studies

The Leveling Up project began in fall 2011, with the majority of the fieldwork taking place in 2012 and 2013. The cases include a variety of affinity networks that make use of online spaces, and they employed research methods varying from questionnaires, surveys, semistructured interviews, observation, and content analyses of media, profiles, videos, and other online artifacts.² When we present ethnographic research in this book, we indicate which of the case studies the example is drawn from. To acknowledge young people as agents, we use the pseudonyms and ethnic and racial categories that our interviewees used to describe themselves. More on each of the case studies can be found

in the individual case narratives that punctuate this book. The analysis this book is drawn from includes five case studies conducted as part of the Leveling Up study. We also draw from three other complementary cases of online affinity networks that were conducted as part of other research studies.

- Ksenia Korobkova's *One Direction fanfiction* case study delved into an online fanfiction community, members of which are connected to each other in two ways: (1) with an online forum and other media outlets, and (2) through *Directioner* fan art.
- The *Ravelry.com* case study, led by Rachel Cody Pfister, examined an online community and database for fiber crafting (knitting, crocheting, weaving, and spinning). The research focused on *Hogwarts at Ravelry*, an interest group that combines the interests of *Harry Potter* and fiber crafting to create a fictional universe.
- Two gaming case studies examined the creative culture and practices among both players and industry game developers engaged with *LittleBigPlanet 2* and *StarCraft II*. Adam Ingram-Goble, Matthew H. Rafalow, Yong Ming Kow, Katie Salen, and Timothy Young collaborated on these two case studies.
- The *professional wrestling fandom* case study, led by Crystle Martin, examined fan communities of professional wrestling, with a focus on fantasy wrestling through role-playing narratives.
- The *anime music videos (AMVs) community* is a case study conducted by Mizuko Ito as part of the earlier Digital Youth Project, and it

focuses on a subcommunity of English-language fans of Japanese anime who create and share remixed videos.

- The *Nerdfighter* case study, led by Neta Kligler-Vilenchik, is based on research from the Media, Activism, and Participatory Politics (MAPP) project led by Henry Jenkins at USC and part of the YPP network. It centers on an informal community formed around the YouTube vlog channel for brothers John and Hank Green. Many of the participants are high school and college age, united by a shared identity as “nerds” and a broad common goal of “decreasing World Suck.”
- The *Bollywood dance* case study builds on Sangita Shresthova’s decade-long research on live Bollywood dance communities. This case study explores Bollywood dance as a participatory interest-driven practice in the United States as it delves into the Hindi Film Dance (HFC) competition scene on college campuses.

In selecting the cases, we were inspired by the “positive deviance” approach developed in the context of public health, which seeks out examples of practices already existing in communities that can be spread and scaled to address systemic problems (Pascale, Sternin, and Sternin 2010). We sought out affinity networks that exhibited dimensions of connected learning; they all include a focus on knowledge, expertise, and excellence, and they embody a set of community norms, values, and practices that support this orientation. All of these affinity networks also enable connections to academic, civic, and future opportunity for at least some of the participants. Finally, these groups also leverage digital media in effective ways, supporting more diverse forms of creative production and voice and making their affinity networks accessible to more participants.

In addition to seeking positive deviants to inform and support the spread of

connected learning experiences, case selection was motivated by the equity agenda of connected learning. In developing our case studies, we not only sought high-functioning affinity networks, but we also sought out areas of interest that catered to diverse populations, particularly those groups underrepresented in technology fields, specifically girls and black and Latino youth. The majority of research on affinity networks to date has focused on groups that are stereotypically geeky and tech savvy. Today's online world, particularly if we consider mobile, social, and entertainment media, crosses lines of class, gender, and race, and we thought it was critically important to gain a deeper understanding of how connected learning opportunities can reach populations who have, until recently, been more at the “digital edge” (Watkins, forthcoming).

Several of our case studies focus on what might be considered the dominant culture of digital elites, chosen in order to gain an understanding of online affinity networks pushing technological innovation. Online gaming communities have historically led in innovation of networked learning practices and peer production. The case studies of *StarCraft II* and *LittleBigPlanet 2* represent this technological cutting edge, showcasing the state of the art in game development, networked community organization, and peer production. These studies, along with the Ravelry case, also highlight the often hidden partner in connected learning experiences—the designers and developers behind the online platforms that youth are using. The coupling is tight between developers and players in the game industry, and game developers often see a core focus of their work as the design of dynamic learning communities, rather than just the games themselves. The AMV case also represents a highly tech-savvy group, dominated by white and Asian young men. The case study of the *Nerdfighters*, from the MAPP project, describes a digitally activated geek community of predominantly young women that has pushed innovation in civic activism through digital networks.

Four of our case studies were selected specifically because they were not characteristic of the stereotypically geeky cultures dominated by white and Asian young men. We arrived at our case study of professional wrestling fans after extensive exploration into affinity networks of youth historically underrepresented in online affinity networks. Many affinity networks that are popular among black and Latino youth, such as those around sports games or music, were ruled out because they lacked a robust

online-community component. Unlike these popular and practices that have high status among youth, however, professional wrestling is often stigmatized in local peer groups, and fans are driven to online forums and sociability to cement their affinity networks. To further diversify the populations of youth we were engaged with, we invited an additional case study of the Bollywood dance scene from Shresthova, a member of the MAPP team. The Bollywood case rounds out our range of interest areas in providing an example of a highly digitally activated group, this one centered on young South Asians. Two other cases were selected because of their appeal to women and girls. The case study of the One Direction (1D) fanfiction affinity network taps into the energies of one of the most activated and mainstream fandoms for younger teenage girls. Ravelry represents an older age set, and it has enabled us to look at intergenerational connections through an interest area that has stood the test of time.

The intergenerational nature of the knitting scene relates to a final and crucial point of differentiation in our cases. The interest areas differed widely in the degree to which they provided a point of intergenerational connection or disconnection and in how culturally distant they were from educational, civic, and career-relevant spheres. The 1D case study represented one end of this spectrum, with a high degree of cultural disconnect between what adults and educators and the youth participants found valuable. It is an interest area that tends not to be culturally valued outside of the affinity network and is likely to elicit eye rolls from parents and educators. By contrast, despite being stigmatized by more mainstream and elite populations, professional wrestling proved to be a point of intergenerational connection in families, and with some educators. Our cases were selected because we thought they afforded opportunities for connected learning across settings, so the other cases, to varying degrees, all provided openings for the kinds of intergenerational and cross-sector brokering we saw with the professional wrestling case. We excluded many popular youth interests—such as first-person shooters—from consideration because we thought that there was insurmountable distance between the culture of the affinity network and educational settings. In all of the case studies, we see the need for a set of supporting points of translation and brokering that connects the spheres of play and learning, and youth and adult worlds, in order to realize connected learning. Our cases to varying degrees exemplify both these disconnects and

cultural distance but skew toward those that can potentially connect across these divides.

Our focus on positive deviants has meant that our analysis excludes many important dimensions of youth participation in online affinity networks. Our focus on high-functioning affinity networks means that our groups are less likely to exhibit negative social dynamics such as hate, overt conflict, and self-harm. In addition, our research subjects tend toward the central and successful members of these networks, who are most likely to experience connected learning. We have little understanding of those who are excluded, drop out, or participate casually. This results from our focus on connected learners, as well as the fact that we observed and recruited within the affinity networks themselves, rather than recruiting a more representative sample of youth through community organizations or schools. These blind spots were unavoidable outcomes of the aim of this study, which was targeted toward surfacing how features of online affinity networks could guide design and positive social change. While many of the dynamics that we describe are common across varied online affinity networks, we signal throughout the text the uniqueness of the examples in this book and when the dynamics are likely more specific to the positive examples we sought out. We also point out when we do have visibility into negative dynamics such as exclusion and conflict. For example, chapter 3 examines status dynamics and hierarchies in the affinity networks we studied. We suggest that readers look to other studies to understand the realities of young people who are less connected to the types of online affinity networks that are the subject of our study.³

What our cases offer is a window into common characteristics of online affinity networks that *do* support connected learning. These include strongly shared culture and practices, varied ways of contributing, high standards, and effective ways of providing feedback and help. Unlike much of the learning that young people encounter in school, affinity networks provide opportunities that are self-selected and intentional, and that are also tied to contributions to social communities and authentic recognition in these communities. This can involve being a community organizer, publishing work online, competing in a public tournament, and providing feedback and expertise for others. Young people have historically had these kinds of opportunities for learning, contribution, and recognition in adult-sponsored athletics and the arts; the online world

can make these kinds of opportunities more varied, accessible, and youth driven.

How Affinity Networks Connect Interests to Learning

The learning sciences have increasingly recognized the role of culture, social relationships, and shared practice in the discovery of interests and persistence in pursuing them.⁴ Research on the development of interests has documented how familial support (Crowley et al. 2015; Crowley and Jacobs 2002), the availability of shared activities (Azevedo 2011, 2013), and rapport with teachers and mentors (Maltese and Tai 2010) play a more significant role than formal instruction in the development of scientific interests. Our research on young people and affinity networks reinforces these views of interest development. We draw from Azevedo’s view that interests are an interaction between individual preferences and “lines of practice”—the ways in which interests are sustained over time through joint activities. We see an ongoing and dynamic interaction between individual inclinations and the network of relationships, affinities, and activities that are available in a young person’s social world. Even when young people have a strong personal passion for a particular interest area, involvement waxes and wanes depending on whether they feel a sense of belonging, if they have friends, family members, and mentors who share the interest, and on access to activities that sustain their involvement. We describe young people’s personal predilection for an interest as an “affinity” in order to highlight its relational and culturally situated nature. A young person’s demonstration of interest is grounded in personal preference as well as whether he or she can relate to the culture, people, and practices that embody the interest. Whether it is math, surfing, or knitting, an interest cannot be separated from its culture, people, and places. These contextual features are fundamental drivers of young people’s attraction to the area of interest.

We see our work on sociocultural contexts for interest development as complementary to psychological research that investigates how interest is triggered, sustained, and deepened (e.g., Renninger and Hidi 2016). We see deepening interest as both “internally” developmental and as an “external” process of building connections that are relational, cultural, and practical in nature. In other words, robust interest is not a

process of “internalization” and is characterized by growth in situational ties; the focus of our investigation has been the development of these sociocultural ties and networks. In this we draw from a long tradition in sociocultural learning theory that recognizes how learning is part of belonging in situated practices (e.g., Brown, Collins, and Duguid 1989; Cole 1996; Lave and Wenger 1991). Unlike the seminal case studies of situated learning in professional “communities of practice” (Lave and Wenger 1991; Orr 1990; Wenger 1998), however, our cases center on networks of affinity and interests that are only loosely institutionalized. We draw broadly on sociocultural approaches in the learning sciences, but we focus specifically on the unique forms of social learning that thrive in technology-enabled affinity networks.

Growing out of sociocultural research traditions, connected learning also draws from learner-centered and socially situated approaches to educational practice. At least since John Dewey (1916) articulated a vision for progressive educational practice that connects school and community, educators have sought to support meaningful, hands-on learning that connects young people to the wider world. The connected learning model draws from this progressive tradition, situating it within today’s challenges of equity, inclusion, and a changing media environment. Connected learning sees common cause with hands-on and experiential approaches such as project-based learning, inquiry-based learning, and constructionism (Papert 1993), in addition to affinities with culturally relevant approaches (e.g., González, Moll, and Amanti 2005; Gutiérrez and Rogoff 2003) and critical pedagogy (Freire [1970] 2000). Connected learning is not limited, however, to a particular pedagogical approach. Instead, the focus is on building relational, practical, and conceptual connections across settings and experiences, centered on learning interests and affinities (see figures 1.2a and 1.2b). Often a project-centered and culturally relevant approach is the best way to build these connections.

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Figure 1.2a. Learning and interest development as a pipeline or progression.

Image by Nat Soti.

{~?~IM: insert F_01_02b_ITO here.}

Figure 1.2b. Learning and interest development as a process of network building.

Image by Nat Soti.

If we return to the story of Amy that introduced this chapter, we can see that her process of developing interests and expertise relied on a growing network of relational supports, activities, and opportunities to share. Her online affinity network in *Hogwarts at Ravelry* helped fill gaps in knowledge, as well as in her social and cultural supports, so that she could sustain her learning and interest in a unique specialization. Unlike an interest such as chess or basketball, which is often supported within schools and other community-based institutions, a specialization in knitting and pattern making would have been difficult to sustain without her online supports.

The fundamental drivers of specialized, expert learning are the same as what we see in more traditional professional groups—learning in situ, sustained engagement with peers with related expertise, and productive social and cultural contributions. What differs is how Amy’s interests are supported through an online, affinity-centered infrastructure that is only loosely institutionalized. Online affinity networks are more accessible than a formal professional community or a community-based organization such as a sports team. This also means, however, that they have fewer ties to the local communities and contexts of participants. In Amy’s case, her supportive family provided these connections, thus enabling a connected learning experience that linked her online and face-to-face settings. Our case studies of online affinity networks and connected learners such as Amy enable us to understand these unique affordances of the online world as well as to reflect on our assumptions about learning and interest development.

The chapters of this book are sequenced to trace how young people get involved in online affinity networks, find a place for themselves in the social scene, and connect those experiences and that learning to academic, civic, and career opportunities. This arc is not so much a learning trajectory as much as it is a map of how online affinity networks can fit into a network of learning activities and relationships centered on youth interests. Although there are steps and pathways that young people traverse through time, connected learning is more appropriately conceived of as the growth of a network of connections than as a linear pathway or an internalization of skills and knowledge. Connected learners are situated within a set of personal and organizational relationships that knit together their interests and affinities, peer networks, and organizational sites of

power and opportunity such as schools, civic institutions, and workplaces (see figure 1.3).

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Figure 1.3. Connecting the spheres of learning.

Source: Ito et al. 2013.

Online affinity networks can play a powerful role in connecting a young person’s learning network because they distill and make accessible a set of relationships and roles that are centered on personal interests and identities. For young people who do not have peers and mentors in their local communities and organizations that share their interest, online affinity networks can fill a vacuum in their connected learning networks. And when they are able to connect the relationships and learning from their online affinity networks back to their local relationships and organizations, the outcomes can be transformational—opening new educational pathways, civic engagements, and economic opportunity. The chapters in this book take on these three dimensions of the network of connected learning by first describing the interests and shared practices that draw young people into online affinity networks, and then turning to the dynamics of peer status that they encounter when they are engaged in these communities. The final chapter looks at links from online affinity networks to academic, economic, and civic opportunity. The organization of the chapters also mirrors the interdisciplinary nature of this study, which brings together internet studies, social network analysis, and the learning sciences. Each chapter highlights the contributions that a study of online affinity networks can make to each of these fields of study in turn.

Interests and Affinity

In the second chapter of this book, we delve into the core practices and structures that make online affinity networks tick: how they wrap themselves around a shared “content world” (Jenkins 2012), organize shared practices that engage participants, and build open online infrastructures that welcome new participants and challenge veterans. We draw from prior research on participatory culture and online communities of interest (Gee and Hayes 2010; Jenkins 1992; Jenkins et al. 2009) and consider the unique forms of social bonding that young people encounter in online affinity networks. The practices we

describe are situated within a trend that internet researchers have identified for people to increasingly leverage mobile and online technology to build more intentional and specialized networks (Lenhart et al. 2015; Matsuda 2005; Rainie and Wellman 2012).

Depending on the interest, the glue that holds online affinity networks together varies widely. Competition and tournaments are the shared purpose that drives the *StarCraft* affinity network. For young people who knit and create levels in *LittleBigPlanet*, creative challenges are a focal point for the community. Bollywood dancers orchestrate performances, and *Nerdfighters* mobilize around social causes. While united by a shared content world, infrastructure, and affinity, successful online affinity networks are spaces of constant renewal. Moderators and community leaders describe a process of constant adaptation in order to continue to respond to an ever-changing network and sustain engagement. What are the cultural content, shared activities, and infrastructures that hold these networks together, and how do they adapt through time?

In addition to describing the infrastructure, culture, and shared practices that hold an online affinity network together, this chapter also considers the role that networks that are learning-centered can play in young people's discovering new interests and deepening existing ones. The chapter locates the online affinity networks we studied as a particular kind of influence in young people's lives, one that enables them to connect to specialized knowledge and relationships that are not present in their homes and local organizations. Young people take to online affinity networks when they want to embrace interests and affiliations that parents and teachers think are a waste of time and that are stigmatized by their local peer groups. One Direction and professional wrestling fans describe how online fandoms offered a safe space for them to geek out on interests that many in their local communities looked down on, and *StarCraft* players hid their obsession with the game from their parents. Even in cases such as knitting, in which the interest has a positive or neutral valence in the family or with local peers, young people describe the online affinity networks as a place where they were able to connect with people who really "get" them and understand the passion they bring to their interest.

Peer Status and Social Capital

Online affinity networks are a context where young people can form social relationships

and networks that differ from those they find in their schools, sports, and local communities. Chapter 3 takes up questions of how status and reputation are negotiated in online affinity networks, and the forms of social capital that young people gain from affinity-based relationships they develop in these networks. Online affinity networks that are learning-centered give young people a context to be recognized for creative production, specialized knowledge, and commitments to a community or cause. These pursuits can also be sequestered from their everyday identities in school and in families, which can give them a safe space of experimentation and expression, supported by peers who really “get it” and have a shared appreciation for their commitments. Because they rely on open online infrastructures, online affinity networks can have low barriers to entry, and those we examined embrace a welcoming and inclusive ethos. At the same time, when they are focused on high-quality work and performance, they develop social processes for recognizing achievement and contributions to the community that create status distinctions. How do learning-oriented online affinity networks mark achievement, contributions, and status in the network? What kinds of social support and benefits come with young people’s gaining status in these networks?

The relationships that young people develop in online affinity networks can be strong and intimate because of the shared affinity and camaraderie of these settings. At the same time, they also have qualities of what Mario Small has described as “compartmentalized intimates”—relationships that are strong but tied to very specific activities and affiliations (Small 2009). The knowledge, skills, status, and social capital that young people develop in online affinity networks are highly valued within the interest group, but they often do not connect and translate beyond those who are in this network. It is akin to what Sarah Thornton has described as “subcultural capital” in describing the indie music clubbing scene (Thornton 1996). Being set off from mainstream culture and organizations creates a strong sense of belonging and unique markers of status, which simultaneously creates boundaries that inhibit connection to social and cultural capital outside of the affinity network. Our cases have varying degrees of tension with the cultural and social status markers of adult and mainstream institutions, but they are all characterized by robust internal markers of reputation, achievement, and status.

Opportunity: Connecting Back to the Wider World

After examining the characteristics of peer status and reputation, the book then takes the final step in the journey through the connected learning model. How and when do the learning and social capital developed in online affinity networks connect and translate to academic, civic, and career opportunities? In many ways, the strength of the bonding and learning that happen in online affinity networks is grounded in their relative independence from the status hierarchies that characterize local peer networks and the more goal-directed learning and achievement of résumé building for school and career. At the same time, we observed instances of young people’s leveraging the learning and relationships developed in their online affinity networks in the wider world.

These connections were most seamlessly developed for groups centered on a “connected civics” model, in which the interest and affinity are already centered on real-world activism and civic action (Ito et al. 2015). In other cases, young people applied skills they developed—such as mathematical reasoning or writing—to in-school settings. We also found examples of young people’s parlaying their online activities into immediate economic benefits—such as selling knitting patterns online—as well as longer-term career pathways—such as choosing to pursue vocational training related to the interest area.

These examples point to the ways in which we can frame educational supports in terms of brokering and connection building rather than the more conventional notion of “transfer.” The ability of young people to make these connections from affinity networks to opportunity were not simply about the individual’s “applying” or “generalizing” knowledge and skills but rested on very specific relational, infrastructural, and organizational supports such as a close relationship to a teacher, a school offering, or civic action related to an interest.

In the final chapter of the book, we explicitly explore the implications of our research for educational practice and the design of programs and technology. While online affinity networks may not be explicitly designed to support connected learning, they provide a rich set of lessons for those seeking to leverage the emerging affordances of the online world in the service of learning that is engaged, equitable, and meaningful.

Case 1.1

The *Wrestling Boards*

Crystle Martin

The wrestlers wait with bated breath for the unveiling of the match card, which tells players whom they will be wrestling that week.¹ As soon as the match card is released by the booker, who manages the fantasy wrestling federation, the wrestlers gleefully spring into action—creating feuds with the wrestler or wrestlers they are paired with that week. Throughout the course of the week, the wrestlers build and perfect their feuds—creating written, audio, or video promos about how they are going to win their match against the opposing wrestler (see figure C.1.1.). At the end of a given week, the booker calls a halt to the feuding, and the anticipation grows as three writers launch into a frenzied weekend of activity, in which they churn out up to 85 pages of text. These stories are released to the wrestlers, who devour every moment—from the time the first wrestler hits the ramp to the last move of the last match with a winner being declared—and every scrap of text between. The wrestlers enjoy every moment of the narrative of the match that grew out of their carefully crafted and raucous feuds. The wrestlers discuss the match and share praise and criticism with the writers, and then the whole process begins again with a new match card and new feuds.

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Figure C.1.1. A wrestling card created by a fantasy wrestling federation participant and the booker.

Image courtesy of Rhashan.

Professional wrestling traces its roots to the nineteenth century (*Scientific American* 1895) and has thrived as a major pastime in North America for the past four decades. World Wrestling Entertainment (or WWE) is now the largest professional wrestling promotion group in the world. Professional wrestling, with its focus on dramatic performance, differs markedly from the ancient Greek–influenced sport of amateur wrestling seen in the Olympics and in collegiate settings. Despite professional

wrestling's popularity, being a fan continues to carry a cultural stigma and is seen as decidedly lowbrow, much like video games (Sammond 2005). Outsiders often object to the vulgar nature of both and see them as educational wastelands devoid of cultural value. But just like the varied genres of video game entertainment, professional wrestling offers participants a variety of educational and culturally relevant experiences. The WWE alone has more than 220 million members on its social media network, with local-language websites in 23 countries (WWE, n.d.).

Founded in 2011 by administrator Crayo, a 19-year-old white male from the United Kingdom, the *Wrestling Boards* is an online professional wrestling community where wrestling fans to come together in a supportive space to share and explore their interest. On the *Wrestling Boards*, participants discuss many aspects of the sport and their surrounding interests, and participate in the community's fantasy wrestling federation (FWF) *Over the Ropes*, which is essentially a text-based role-playing game. This is a space where the love of professional wrestling intermingles with an enjoyment of role-playing and writing.

Participants on the site range in age from 15 to older than 60, with the majority falling in the 16 to 25 range. A majority of participants are male, although the community has several very active female members in its core community. The *Wrestling Boards* forum has more than 4,300 members, but only about 100 participate in the FWF, with about 20 characters participating in a season of matches at a time. Despite its smaller number of participants, the FWF is a vibrant and active part of the forums.

The *Wrestling Boards* forums are very user friendly, allowing participants to add elaborate signature images or .gifs, mashups of their favorite wrestler(s), or in one participant's case, a mashup of his favorite wrestler and his favorite *My Little Pony* character from the newest version of the television show. Community members frequently include links to outside resources, videos, and audio files so that they can share news, opinions, best-of videos, and a host of other information with others on the forum about the complex story lines surrounding professional wrestling. They also participate in a variety of shared activities within the fantasy wrestling federation, such as feuding in character and writing reviews of each week's show.

Participants in the community describe again and again the importance of help

and feedback to the community, and supporting each other is a shared expectation among members. In the professional wrestling fandom, educating newcomers about “the product” of wrestling is a shared goal of the community. Some new fans believe that wrestling is a real sport, and wrestling fans work hard to educate these “marks” into what Crayo calls “smarks,” helping them to understand that professional wrestling is scripted and choreographed and is actually a genre of television writing. Participants on the *Wrestling Boards* answer each other’s questions about wrestling story lines, wrestlers, wrestling history, community norms, and participating in the fantasy wrestling federation. They use help and feedback as a support system and as a way to create social bonds with other participants. Jonathan, a 16-year-old white male from the United Kingdom, describes why help and feedback are so prominent in the community: “At the end of the day, we’re all alike and we’re like a family on *Wrestling Boards*.”

The site was just a year old when I first started observing it, so at the time the core group of original members was still very prominent in participation and visibility. These members have earned special status because of their history with the community. The site allows members of the community to have titles under their chosen image or avatar, which are given by specific groups or for actions on the forum. They can also display the trophies they earn for things such as “member of the month.” Participants use a variety of strategies to determine who has status on the forum, including activity, quality of postings, trophies earned, and so on. Only rarely do they use the reputation system that is built into the forums; instead they use a system similar to the way people evaluate “likes” on a Facebook post.

Learner Story

The story of one *Wrestling Boards* participant illustrates how a lifelong interest can evolve into an avenue for expertise development and to a potential career path. Rhashan, a 19-year-old African American male from New Jersey, has been watching wrestling nearly his entire life. “I started watching when I was three or two years old because my mother had introduced it to me and I was automatically entertained.” His initial introduction to wrestling was during the Attitude Era, a period of wrestling for the WWE—then the WWF—from the latter half of the 1990s to the early 2000s that was

marked by a shift to more adult content. Rhashan has attended an extraordinary number of wrestling shows live: “3 house shows, 8 Raws, 4 Smackdowns, 2 Pay Per Views, and 4 Wrestlemanias.” Despite his family’s support of his interest, Rhashan has no local community to discuss wrestling with. “In my hometown there are scattered wrestling fans here and there, nothing intense for people my age. However, children seem to be all watching it.” Because of this, Rhashan has become guarded about sharing his interest outside the *Wrestling Boards*. “Some of my friends have an interest in WWE and I’ve made friends on this site, but I don’t know these guys in real life. I haven’t introduced my friends to WWE. WWE is not something that’s like amazing to show around, it’s just something I like.”

Through Rhashan’s long history with wrestling, he has developed a detailed method that he uses to choose which wrestlers to support.

Daniel Bryan is my favorite wrestler at the moment. I choose wrestlers to support based on who’s not in the top tier, like Cena & CM Punk. I like to go for fresher guys and people who haven’t gotten that shot yet. However that’s the least important aspect. I think that a wrestler must, of course, be able to wrestle a good match, and I’ve seen some that can’t. The last aspect is mic skills, which is the ability to captivate an audience just by using a mic. It seems worthless, but it’s the mic that builds up the hype for every match.

His interest in the total package, including the theatricality of a wrestler’s performance on the microphone, stems from his long history with wrestling, as well as from his interest in the creative pursuit of filmmaking and his understanding that it takes many elements to create a great dramatic scene.

Rhashan is an expert in his interest, with a long memory of its history, story lines, and wrestlers. If you ask him about his favorite wrestlers, you get answers that span a decade. He is also a heavy technology user when it comes to participating in his interest, using social media, YouTube, wrestling news sites, and forums. Rhashan has developed a web series on YouTube in which he creates analysis videos of the weekly show *RAW* and the annual pay-per-view event *WrestleMania*. He displays technical skill in video and audio editing, splicing together segments of the television broadcasts with shots of himself talking, and the audio runs seamlessly throughout each video. He enjoys the *Wrestling Boards* because it offers varied perspectives on wrestling through its diverse international community, and because it gives him access to a steady stream of people

who are interested in his filmmaking. Rhashan uses his digital skills in video and audio editing to enhance his participation in *Over the Ropes*. “No one else really does *Over the Ropes* like I do, to the extent of shooting real promos.” With feedback from the community, he improves his video scripts as well as his video and audio production. He thinks that the videography skills he is developing in the *Over the Ropes* role-playing community are helping him to hone his career in filmmaking. Rhashan is interested in building a larger following and connections to future opportunity, using the *Wrestling Boards* as a site to develop and launch his future career as a filmmaker.

Case 1.2

StarCraft II

Yong Ming Kow, Amanda Wortman, and
Timothy Young

You know your opponent is coming even before you can see his or her forces.¹ As soon as gameplay starts, you balance resource collection and unit creation to build your own army (as seen in figure C.1.2). Each decision you make has ramifications for the entire match and is made at the expense of something else. Did you build enough medics? What about base defense? The game is all about strategy and speed. Efficiency is the key. And just as in chess, different strategies can be employed to defeat your opponent. The strategies differ based on the map you are playing, the race you are competing against, and the play-style of your opponent. But like any good chess player, you go to the match with a variety of versatile strategies in your back pocket so you can change your strategy no matter what situation arises.

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Figure C.1.2. A *StarCraft II* match tests players' ability to manage a battlefield in real time.

Image courtesy of Blizzard Entertainment.

StarCraft II is one of the most popular PC-based real-time strategy games and is labeled by many of its participants as the chess of the 21st century. It is part of a franchise of games, with the first of its series, *StarCraft*, released by Blizzard Entertainment in 1998. *StarCraft*'s well-designed and balanced competitive gameplay encouraged droves of youth to pit their skills against each other, a practice that eventually became what is now known as esports, or the practice of regulated competition with video games. The population of *StarCraft II* gamers is fairly homogenous, consisting mostly of college and high school students, as well as a significant number of young working adults. The interviewees in our study ranged in age from 15 to 30 years old and were predominantly male, though we interviewed a handful of females. About 90 percent

of our interviewees were either white or Asian American. In the early years, *StarCraft* events were mostly self-organized by youth interest groups. But in 2011 and 2012, these competitive events saw rapid growth, with international tournaments awarding \$2.5 million and \$4 million, respectively, to winners.

The lore and backstory of the game flesh out an engaging and rich content world for players to explore during narrative-driven single-player games. In a *StarCraft II* competitive match, players control armies to engage in intergalactic warfare. The army units that players control, the maps that players compete on, and the art surrounding the world all contribute to the epic *StarCraft II* story line. Players control one of three factions—Terrans (human), Zerg (swarm insectoid creatures), or Protoss (futuristic alien race)—building bases, managing their economy, and raising an army to defeat their opponents. The game and community present a unique environment in which competition and professional play become a platform for self-directed learning and improvement, as well as inspiring various initiatives for community growth.

At the core of participants’ discourses about *StarCraft II* is the “metagame,” or “any planning, preparation, or maneuvering that a player does outside of actual gameplay to gain an advantage” (Team Liquid 2013b). In other words, it is the analysis of game mechanics and shifting social discourses of strategies within the community—which comes from deep analysis of high-level gameplay and active participation in online forums and video commentaries. While the metagame often refers more widely to any game-related activities that take place outside a game’s formal play space (Salen and Zimmerman 2004), the term, as used by *StarCraft* players, captures the robust way in which the game connects shared purpose in an interest-driven activity to learning and expertise development around that activity.

Driven by a common interest in the metagame, *StarCraft II* players both consume and create a range of media content, such as videos and articles, which they often link to one or several of the *StarCraft* community hubs, such as Day[9]TV (day9.tv) or *Team Liquid* (teamliquid.net). Day[9]TV features web shows revolving around high-level analysis of *StarCraft* gameplay. Day[9]TV is extremely popular among community members for its mix of high-level strategy analysis, humor, and approachability for players of all levels. Other hubs, such as *Team Liquid*, have been built through the efforts

of volunteer fans who contribute their time to write articles, produce videos, and organize online and offline events, such as tournaments. These practices demonstrate how a game such as *StarCraft II* can enable players to anchor their interests to develop strategic and systemic thinking as well as contribute to a community and shared culture.

Although *StarCraft II* supports single-player play, the dominant mode is highly social, with players competing and practicing with one another and also studying the play of others. Blizzard Entertainment provides an online matching system, called “the ladder,” that players use to identify random practice partners. But players also take the initiative to seek out volunteer coaches and teachers in order to benefit from a more personal form of learning. Day[9]TV reflects this peer-supported ethos by hosting forums where players exchange knowledge and tips, allowing for community chat during the live shows, and inviting player suggestions for show content and contributions of game replays. While Sean Plott, a 25-year-old white male from California, is the personality and expert behind the show and the site, his approach and demeanor reflect a welcoming, unpretentious community ethos as he continuously seeks input and feedback from the crowd of *StarCraft* enthusiasts and experts.

StarCraft II is designed by Blizzard Entertainment so that players can get involved in content production, sharing, and curation. The *Team Liquid* online forum is an important participatory hub for these content producers. The site serves as a repository for various digital media such as articles, forum and wiki posts, and weblinks that cover a wide range of competition strategies. Apart from sharing core content related to the *StarCraft II* metagame, *Team Liquid* also acts as an information hub for the community where members publicize local activities to the rest of the community members. Younger players can also use *Team Liquid* to form open-membership and cross-generational practice partnerships so that they are exposed to more experienced players as personal coaches. According to a *Team Liquid* survey, 62 percent of its users are students, while 24 percent are employed full time (Team Liquid 2012).

Among all production activities, forum posting and article writing are perhaps the most accessible for players. New York-based Waxangel, in his early 20s and the team’s chief editor, told us that writing is one sure way to get players involved in the community. Any *Team Liquid* participant can post to its forum, which is moderated only

for offensive content. It also has a writing team. The only difference between general forum posters and *Team Liquid* writers is that the writing team tends to write longer articles and also receives peer support from Waxangel and his editorial team. Some of these articles analyze strategies, while others report on gaming events or introduce professional gamers.

Waxangel hand-picks his writers by inviting forum posters who exhibit relevant aptitude. He describes an important hallmark of a good *Team Liquid* writer as “someone who is very passionate at esports, because a guy who’s not that good at writing technically but has a lot of passion for esports, you can definitely tell that in his writing.” Waxangel welcomes writers such as Day[9], who already has an illustrious reputation in *StarCraft II*, to publish anytime.

Occasionally, *StarCraft II* gamers find career opportunities in professional gaming if they put in years of effort in learning and practicing with other equally dedicated players. Likewise, content producers who attain high levels of expertise in writing articles or broadcasting events may also find employment opportunities in the gaming industry. For example, the shows on Day[9]TV, which began as a passion project and online daily TV show devoted to the art and strategy of *StarCraft II*, became a full-time job for Sean Plott.

Learner Story

Mona Zhang is a 22-year-old Asian American college student at Princeton University and the female founder and leader of the *Collegiate Starleague*.² Mona is also a master level player, meaning that she is among the top 2 percent of players in the United States. Mona is both a powerful player and a community leader—a strong role model for other female gamers.

As with most active *StarCraft* participants, Mona’s experience with computer games started at an early age. She first started playing *StarCraft* when she was 11 years old because her brother was playing it, and she wanted to do the same. Her relationship with her brother had always been close, and she was motivated to emulate his interests. Besides *StarCraft*, she and her brother shared an interest in console games, *Yu-Gi-Oh!*, and *Tiberian Sun*. And like some other gamers, Mona started by playing games casually,

for example, doing comp stomp (beating computer opponents) and playing for fun. Later, she found videos of professional gaming events on the openly networked internet and fell in love with professional competitions.

Mona elaborated on how difficult it can be for young women to discover their own interest in things that are stereotypically male:

There's always that issue of access. You don't have girls saying, "Oh, video games, I should play them because they're cool." What I mean by that is that a lot of girls, when they're brought up, they basically do things that their peers are interested in or that their parents give them access to. Because no one tells me that, I'm not going to say, "Hi mom, get me an N64." That's what my brother did because he was like, "Oh, all my guy friends are getting N64s. Mom, get me an N64." Otherwise, girls are only exposed to things like shopping. Your peers are really interested in shopping. Your peers are really interested in books and "hanging out." It's very different, and because of the different exposure that you are given, I feel like it's more difficult to learn how to read a game or learn how to play a game.

Mona suggests that young women ask for things that their peers and parents think are culturally appropriate. If her brother had not asked for video games, she would probably not have had the opportunity to play them.

Having access to video games at home is not the only influencing factor in Mona's development of a geeky interest. She also met like-minded geeky peers in the International Baccalaureate (IB) program at her high school. IB programs expose students to mathematics, science, and critical thinking, which may explain why Mona found many other geeky kids to hang out with. "A lot of us were nerds," she said. There, she met three other female friends with similar backgrounds—they had geeky siblings and were interested in *StarCraft*. They became best friends. Playing competitively online for the first time is a nerve-racking experience for all *StarCraft* players. Mona and her friends supported each other, socially and emotionally, by cheering each other on until they became more confident. At school, they beat the *StarCraft* boys in their class.

Mona speculated that had she not had geeky siblings and peers in her early life, she would have found it difficult to pick up video gaming in college. She provided us with an example by describing expert keyboard manipulation. "What is WASD? You move using those controls in a game. If you only use your computer to check your email, it's incredibly difficult for females to get into the gaming scene." Mona told us that many college women she had met faced similar difficulties. Gaming skills are more complex

than simply controlling your mouse to click on icons. Avid gamers develop fine keyboarding skills, such as clicking on the correct keys without even looking at the keyboard, through their frequent usages of common game controls such as WASD. These gamers can pick up new games and become good at them much more easily than others can.

At Princeton University, Mona remained deeply interested in *StarCraft* and looked for like-minded students to form a *StarCraft II* club. She describes how she first recruited participants, joking that a shared geeky Asian identity helped prime the pump. “If I saw an Asian guy who kind of looked Korean, who looked like he might know what StarCraft was, I would ask and be like, ‘Hey, we should start a StarCraft team.’ And so I met a lot of people through that process.”

After she found a handful of students at Princeton who were interested in *StarCraft II*, the group began organizing matches with other schools:

We were thinking, “Hey, in two years, if we get 20 schools we will be happy.” What happened was, the Princeton students—I started trying to meet the Princeton team—and someone from MIT who was my friend, he said, “Hey, we play StarCraft here, let’s have a show match.” We thought it was great fun so we made a hype video about it and we broadcast it.

After that, people started emailing us. We did most of this through Team Liquid [a popular *StarCraft* community site]. People were like, “Hey, we want to play too.” At first, we were just going to do show matches every week, and I would try to organize them. But eventually we got so many sign-ups that we got 26 people. . . . Then we went up to 144, and now we’re at 250.

Through a collaborative effort between Mona and her friends, *Collegiate Starleague* has become an overwhelming success, built on the principles of peer support and shared interests. These college students use their social networks of similar-aged peers to build a league in which players share an interest in *StarCraft II* competition and learning and are identified by the college they are attending. In 2013, participating colleges included the champion University of California, Berkeley; University of California, San Diego; and University of Washington.

Chapter 1. Introduction

¹The a priori coding scheme was derived from the framework and design principles developed by the

Connected Learning Research Network in the report *Connected Learning: An Agenda for Research and Design* (Ito et al. 2013). Each researcher coded the data he or she collected, and emerging themes were discussed often in coding meetings attended by all research team members. Analysis was facilitated by Dedoose, the first cloud-based qualitative analysis platform that is designed with an emphasis on collaboration. Analysis of key constructs provided a pooled Cohen’s Kappa of .91, indicating high inter-rater reliability. The case studies from the MAPP team, and Ito’s prior research with anime fans, were not part of this more intensive research-coordination process, and that material was brought in more selectively at a later phase of the analysis to enrich the core findings established by the Leveling Up case analyses.

2Collectively, the Leveling Up research team conducted 166 semistructured interviews and chronicled more than 1,500 hours of observation, which were catalogued in field notes. In addition, a demographic and media background survey was completed by 83 participants. Supplemental data from USC’s Media, Activism, and Participatory Politics project include 15 participant interviews, 2 expert interviews, and 35 hours of observation for the *Nerdfighter* case study; and 120 interviews with dancers and choreographers globally (40 interviews in the United States), more than 200 hours of on-site observation, and extensive in-depth media analysis for the Bollywood case study. The anime music video case study draws on 23 interviews, an online survey with 277 valid responses, and more than 300 hours of observation at conventions and online.

3Our earlier Digital Youth Project includes chapters that focus on more typical and casual youth engagements with social media (boyd 2010; Pascoe 2010). More recent studies from the CLRN also look at populations that are less digitally connected. Sonia Livingstone and Julian Sefton-Green’s *The Class* (2016) documents the experiences of a class of students in a “typical” secondary school in London, and it finds few examples of connected learning. Craig Watkins led a study on the “digital edge,” focused on youth who are struggling to connect their digital interests to opportunity (Watkins, forthcoming).

4Parts of this section were originally published in: Renninger, K. Ann, and Suzanne Hidi, eds. 2018. *The Cambridge Handbook on Motivation and Learning*. Cambridge: Cambridge University Press.

Case 1.1. The *Wrestling Boards*

1Parts of this case study were originally published in: Martin, Crystle. 2014. *Learning the Ropes: Connected Learning in a WWE Fan Community*. Irvine, CA: Digital Media and Learning Research Hub.

Case 1.2. *StarCraft II*

¹Parts of this case study were originally published in: Kow, Yong Ming, Timothy Young, and Katie Salen Tekinbaş. 2014. *Crafting the Metagame: Connected Learning in the StarCraft II Community*. Irvine, CA: Digital Media and Learning Research Hub.

²Real name used with permission.