3 NEW CONNECTIONS

Interviews with Jorge Just, Chad Hurley, Alexandra Juhasz, Bob Mason with Jeremy Merle, Ev Williams, and Mark Zuckerberg

Making connections may be the noblest work of man.

Ralph Caplan, author, public speaker, and designer

EVERY MEDIUM RELIES ON some kind of infrastructure, but the enabling technologies are often in flux, and the introduction of new technologies affects the experience of all end users. Consider the early decades of the telephone, when people relied on human operators, who patched cables at each local exchange, to help them connect. Compare that to modern phones, with automated exchanges, message services, Internet access, and thousands of unique applications.

Transmitters used to broadcast television and radio signals to audiences by pulsing analog electromagnetic waves from antennae perched on towers, but now digital signals are received from satellites or networks of fiber optic cables. Printed newspapers, magazines, and books reach their audiences through an infrastructure of physical delivery, but now they are also available online or as e-books. Music has been connected to listeners through an ever-changing series of delivery vehicles, including radio, vinyl records, cassettes, and CDs—now more likely using online distribution and digital storage.

Digital technology and the Internet have suddenly opened up a dramatic flood of new connections and connectivity that's confusing in its intensity and reach. Traditional media are being challenged by unexpected new media that have been spawned by these new connections. This chapter looks at a few surprising examples of these new media, discussed by people who have ridden the wave of change.

Jorge Just masterminded promotion for the band OK Go, making them famous through viral videos published on YouTube. Jorge is still young, but he has already made a lot of new connections. He learned digital audio editing in order to land an internship at *This American*

⟵ **Noble Connection**
photo by Mel B./Creative Commons

Life. He connected with the band's fans by writing them personal notes that invited them to engage with the musicians. He developed a Web site that connected with journalists and advertisers professionally and with fans intimately. He made the connection with YouTube before any other musician, band, or label had ever contacted them. The members of OK Go came up with music videos that were intricate dance routines, a hybrid of boy band dancing and cheerleading. Once on YouTube, these videos turned viral, and total strangers around the world began emulating the videos with their own creativity and fantasy.

Chad Hurley, the founder of YouTube, describes how he designed the Web site and developed his company. Chad had noticed the success that Flickr was having in connecting people to share and publish photos and saw a similar opportunity for video. He knew that inexpensive video cameras and editing software were already available, but it was difficult to share video online because of varying formats, large file sizes, lack of standardized media players, and limited bandwidths. He put together a team to solve the technical challenges and designed the Web site to make it sympathetic and accessible, with an architecture that keeps connections open. By the end of 2008 YouTube was receiving more than fourteen hours of video every minute.

Some people are disturbed by the nature of the connections encouraged by YouTube. Among them is Alexandra Juhasz, who teaches media studies and is interested in the political and artistic uses of media. She leads a course called "Learning from YouTube," teaching the class both about and on YouTube. As a scholar and activist, she is instinctively repelled by the YouTube experience, believing that the communal building of knowledge can't happen on this medium and that the idea that the site is democratic is untrue. She sees a need for teachers and educators to raise the level of video creation skills, so that most people are competent to participate rather than just consume.

Online video is expanding exponentially, fueled by inexpensive video cameras and desktop editing, combined with the arrival of adequate bandwidth for viewing on personal computers and handheld devices. This means that video content of all types is becoming available online as well as in traditional media, so the door is open for new connections. Entrepreneurial offerings are springing up for a host of specialist applications that complement the dominant YouTube. Among them are subscription services such as Brightcove, which encodes video, uploads, launches, and presents it in a branded player on a Web site in less than thirty minutes. Cofounder and CTO Bob Mason explains how this works in his interview, along with Jeremy Merle, the leader of the company's team of user-interface designers.

Twitter is the most puzzling of the new connections. Even founder and CEO Ev Williams was surprised when he tried using the first prototype, finding it engaging to get that human connection in a fun, lightweight way. Ev is a serial entrepreneur and relates the sequence of ventures that led him to Twitter, including the adoption of *blog* as both a noun and verb and the use of the term *blogger* as a brand name for the tool that he was developing. He arrived at the design for Twitter via attempts to develop podcasting, upstaged by Apple, and ideas for creating a social status broadcast system, which were first inspired by real-time connections from dispatchers to couriers. Ev has been amazed by the growth of Twitter and tweets: initially the minimal format seemed odd to him, but it appears that the very simple structure makes it flourish.

For the final interview in this chapter, we talk with Facebook CEO and founder Mark Zuckerberg, who has developed a design approach for social networking that looks for empathy and openness, offering much more visual richness than the minimalism of tweets. Mark was only twenty and still studying at Harvard when he founded Facebook, exhibiting a prodigious ability to create software balanced by a surprisingly mature philosophy and idealism about sharing connections and information. Facebook looks like it will be a dominant player in social media, with more than a thousand employees and a potential market valuation approaching $5 billion in 2009. Mark is shy, but his ability to think deeply about the future and drive the strategic direction for the company shines through.

JORGE JUST

Interviewed December 9, 2008

Jorge Just
photos by author

JORGE JUST

While at Williams College studying history and political science, Jorge fell in love with the public radio program *This American Life*, so he taught himself to edit audio, moved to Chicago, and applied for an internship with the program. Ira Glass gave him the opportunity and helped him learn the art of storytelling. During his time with the program, Jorge developed a friendship with the members of the band OK Go and became interested in finding creative ways for them to communicate with their fans, and for the fans to connect with each other. When OK Go began experimenting with music videos as an art form, Jorge helped them reach an expanded audience through an ingenious viral campaign that leveraged social networking and YouTube. OK Go won a Grammy award for the video that accompanied the song “Here It Goes Again,” which featured members of the band dancing on treadmills. Jorge also writes, sometimes with pen and paper, and enjoys delving into television and radio. His work can be heard on *This American Life*, and he is a frequent contributor to the Canadian radio program *WireTap*. Jorge has also applied his insights about creative collaboration to another kind of social venture, leading an open source technology project called RapidFTR that helps reunite families in emergency situations.

When I was talking to Ira Glass (see chapter 5) on the phone about setting up his interview, he recommended that I also talk to Jorge Just, who has interesting ideas about viral media. I therefore set up an interview with both of them at the IDEO offices in New York and discovered that Ira had done a lot to help Jorge advance his career. Jorge was very thoughtful during his interview, often pausing to consider his replies before responding—I could see his thoughts racing forward to consider the implications of a statement before he made it. I was impressed by his maturity and wisdom, expecting that he would continue with a career as a radio journalist, writer, and music promoter. I find it admirable that he has instead decided to hone his creative skills by returning to school in 2008 to study design and media at the ITP program at NYU.

Music editing
photo by LiquidMolly/Creative Commons

CONNECTING TO FANS

After he left college, Jorge spent a week in a musician friend's one-bedroom apartment, which was filled with the equipment needed to torture materials for sound effects and experiment with electronic music to teach himself audio editing. Once he felt confident with his new skills, he set off for Washington, D.C., in search of newsworthy material. He recorded interviews at a political march to use for his very first story. Armed with his edited audio sample, Jorge then flew to Chicago and knocked on the door of the radio station where *This American Life* was being produced by Ira Glass and his close-knit team. He talked his way in, met Ira, applied for an internship, and was accepted. There he learned the craft of radio, especially how to tell stories and engage an audience emotionally.

The internship didn't pay very much, so Jorge started earning some extra income by freelance writing. Damian Kulash, the lead singer of a band called OK Go, approached Jorge and asked him to help write the band's biography.

> Damian came over to my apartment one day and we thought through the biography—not just as a standard timeline of what the band represented, but also thinking about the audience for this document, and what it could be, and who was going to read it. The collaboration between us was clearly going to work.
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> Bit by bit he and the band kept asking me to do small things and help them in a myriad ways. I started doing their merchandise and shipping things off for them, doing little bits and pieces of the infrastructure of what you need to keep a band going. That led to the Internet. I started thinking about their Web site and how people were going to use it and interact with it and what it would mean to have a band Web site. Slowly but

OK Go band members
photo by Danno Nugent/Creative Commons

> surely I got enmeshed in the world of a band that was trying to make it and trying to grow—trying to understand the motivations of their fan base.
>
> The fan base is a rabid audience. It's people that, in a lovely way, are very interested in what you are doing. I think the experience that people have when they listen to music is immersive, and it's hard for them to define why it's important to them. For a certain breed of fans, that translates into wanting to know everything, or wanting to engage with the artists themselves in a way that doesn't happen in a lot of other media.

The biography was aimed at local writers, reporters, and editors—people who would help the band get more exposure and attract audiences from a broader community. This was back in 1999, before the popularity of the blogosphere, when the local press offered the best form of publicity. Appealing directly to the fans was a very different challenge, as they hanker for intimacy rather than the factual information that will help a journalist put together a description quickly. A reporter who is writing a story about a band needs to read a bio. Somebody who works in advertising and wants to license a song needs contract information. They may listen to some music, but they're not there to form an intimate connection with the group.

When OK Go went on tour for the first time, they invited Jorge to tag along to help them sell their merchandise. He discovered that he had a natural talent for selling T-shirts to teenage kids. He liked talking to

them and had very strong memories of what it means to be a fifteen-year-old who's really excited about buying a concert T-shirt. He learned a lot from these one-to-one conversations with individual fans.

Between shows he was stuffing envelopes to mail T-shirts and CDs, but he felt frustrated that the communication was cold and anonymous, with nothing interesting or creative about it, so he started writing personal notes to include in each package.

> I got this school pad of Little Princess paper, and with every order I would send a note, probably about a hundred words, with a few sentences about whatever I was thinking at that moment, or the fact that my plants were dying, or some sort of stream-of-consciousness riff.
>
> It was just to say, "Hello, somebody is on the other end of this, and thank you for buying something." On the back of each note I wrote, "If you go to a show and find a band member, sign and date this note, and they'll buy it back from you, for basically anything you ask." I don't think I told the band that I started doing that, and they started getting people coming to shows with these notes that were from me and demanding payment.
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> So this remote interaction between a fifteen-year-old kid somewhere, and me, a guy who's stuffing envelopes in Chicago, that turned into an actual interaction between that kid and a band member, becoming a real personal interaction. It's not, "Hi, can I get your autograph? Can I take your picture with you?" It's, "I have this note. I'm here at your show and it says that you have to buy it from me." You're a band member and you've just performed, so you probably don't have anything on you. Your wallet is backstage. You have to figure out ways. … My friend Damian had a tennis ball. Somehow he had been playing with his dog after the set and the tennis ball was all chewed up, and whoever it was got incredibly excited about it and traded a note for it.
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> I think I did it for a year just because it was such a challenge to write these notes, but that was another lesson in what it means to get people excited about a band. It's marketing in

OK Go performs
photo by Bradi/Creative Commons

retrospect, but it's not marketing at the time. At the time, it's reaching out. It's creating some sort of actual interaction and engagement, something surprising.

VIRAL DANCING

The band members and a filmmaker friend created a concept called "The Federal Truth in Music Project." It was a series of one-minute skits in the form of public service announcements. They were funny vignettes, each ending with a snippet of a song, for example, about payroll forms. They put up a Web site with no reference to the band, telling the story about this project that never existed, and they fell in love with video as a medium.

When *This American Life* did its first tour, Ira Glass invited OK Go to go along as the house band. It was strange for a rock band to be playing songs to a seated audience as part of a public radio show, so they looked for something to add that would be entertaining and different. They ended up creating an intricate dance that was one part choreographed boy band dance and two parts cheerleading routine. When preparing for their own next tour and planning their stage show, the band decided to replace encores with a new version of this type of dance routine, which proved to be very popular and turned into a signature element of their shows. Jorge remembers how the dance performance was recorded on video.

There is a video of them in Damian's backyard where they're rehearsing; it's the last take. They borrowed a camera and recorded it and sent it around to me, and some friends, just to show us the work in progress, and it happens to be this fantastic, perfect piece of viral video. It's just the sort of thing you see and immediately want to see again and want other people to see. It makes you feel good. You look at it and think, "I've never seen anything like this, and it's fantastic." It was clear to the band and to everybody around that it was something the fans should see.

By this time they had a record company sponsoring their tour, but the professionals behind the label did not want to release the video to the fans, thinking that having a boy band pirouetting around in a dance routine was not the right kind of promotional material. The band did what any self-respecting band does in that situation; they burned a few DVDs and handed them to fans at shows. They were in the habit of going out front after they had finished playing, to meet fans, take pictures, and talk to people, so in every city they'd give out a few DVDs. The video started to propagate and soon showed up on YouTube.

We knew about YouTube, but it was sort of nascent. You could tell it was something that was going to be fun to play around and experiment with. I was visiting a friend for a weekend in San Francisco, so on the plane I wrote an email to the contact address on YouTube. I got an email back asking how long I was going to be around, and if I wanted to come in and have a meeting with them, because, as they told me when I went, no band, musician, or label had ever contacted them.

The backyard dance routine for "A Million Ways"
screen captures

"My Sister's Wedding," a remake of OK Go's backyard dance video
screen captures

OK Go was still a relatively obscure band, but just the act of contacting them and saying, "There's something very cool that you're doing and we have ideas for it," was enough to get them excited. There were bands that were putting videos up, and the editorial team at YouTube was trying to feature them, get them placement, send them messages, and reach out to them, but nobody was paying attention. I went and talked with them about what a band might want, and why MySpace at the time was interesting to bands, and get their ideas of what they were going to do. They had videos, and they wanted to share videos. That was a tougher thing for bands, because having your music used in a video and sending it all over the world doesn't necessarily mean there's any connection being made between you and that video.

The first one that spread in a surprising way was this video of OK Go dancing in their backyard. Someone sent us a video of a re-creation of that dance at a wedding. The OK Go video is really fun to watch, but it was even more amazing to watch four chubby, middle-aged guys doing this dance for their sister at a formal wedding.

The band members and the fans loved this example, so they seized the opportunity to make something of it, setting up a dance contest. They asked people to re-create the video in whatever imaginative, creative way they could. This turned viral, with the derivative videos popping up everywhere. They were compelling, funny, and even sometimes cool. A magical new kind of connection happened, with the band inventing this new kind of entertainment that could easily have just been an embarrassment but turned out to be both charming and engrossing. Total strangers around the world joined in with their own creativity and fantasy.

The question that's interesting to me is whether you can do something that people want to pass along but then also want to engage with in some way, or interact with, or make part of their lives. People of all ages devoted significant amounts of time to learn a dance, which is both goofy and hard. The choreographed two-minute thing in the video is a single take. You can't fake it, really. People worked weeks and weeks to do this because it was fun, but it wasn't because payoff was going to be great. It wasn't the record company giving a million dollars. The thing about a viral video is that you can make something for $11 and get the exact same reach as you could with a Super Bowl advertisement! That's nothing to scoff at.

The first video had been inspired by the kind of dancing that you see in music videos, combined with cheerleading routines. The next video, which really made them famous, showed them dancing on treadmills. Damian's older sister Trish was a professional ballroom dancer. She loved goofy ideas and grand gestures. One day she went to the gym and came back with a fully formed notion in her head of the band dancing on treadmills and convinced them to do it. They loved the idea but couldn't find anywhere to rent treadmills, so they decided to buy them with a thirty-day return option. They installed them in Trish's house for a week, came up with choreography, filmed the video to the music of the song "Here It Goes Again," and then returned the treadmills.

OK Go dancing on treadmills
screen captures

There was tension with the record company about whether or not it would be of value to post the video on YouTube, so the band held on to the video for a very long time, until it was clear that the record company was done with them. They had been seeding YouTube and getting fans involved, so they knew that this new video would fly. It turned out to be a dramatic example of viral media success. The fan base for OK Go was there and ready—the open competition to emulate the first video had become popular—so the moment they put the new video out, it floated to the top of the YouTube ratings. The band went from obscurity to worldwide fame with the help of an ingenious connection to a new medium, combined with inspired performances that engaged and charmed people by their unselfconscious vitality.

IN NEW YORK THERE ARE OFFICE BUILDINGS full of experts who are trying to create viral videos, hoping to gain the exposure of enormous promotional campaigns at negligible cost. There is nothing new about the concepts of narrative and emotional engagement that people find interesting or surprising in an appealing way, but that is not the only ingredient of viral success. The medium for distribution must allow an easy way for enthusiastic viewers to pass a recommendation along to an ever-expanding audience. YouTube was the place where the virus spread, where the charming vitality of the video was noticed by so many and emulated by some, providing a key element in helping OK Go emerge from the musical wilderness. In the next interview, Chad Hurley, the founder of YouTube, helps us understand how the most successful video Web site came to be and what video sharing may mean in the future.

CHAD HURLEY

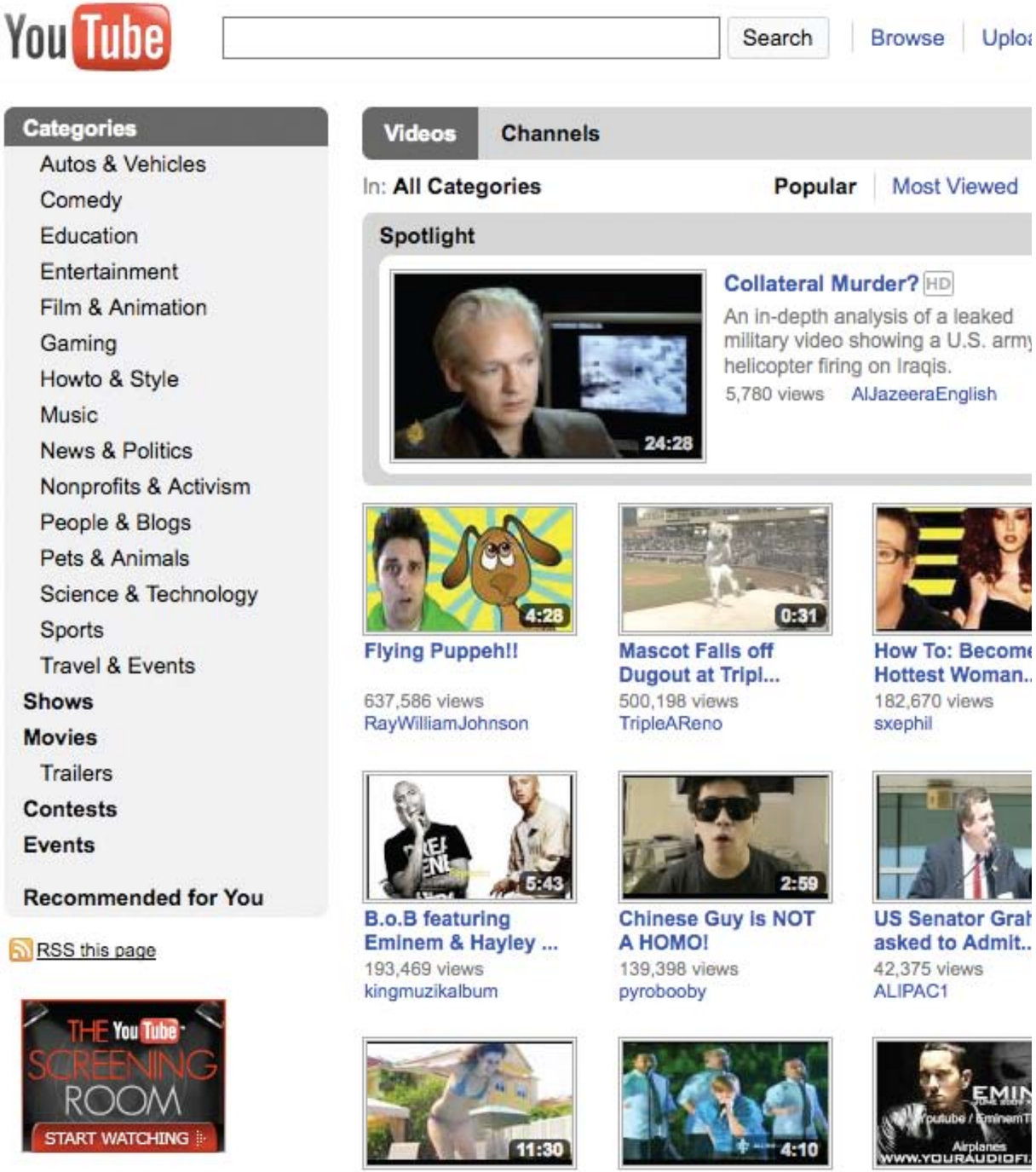
Interviewed December 2, 2008

← **Chad Hurley**
photos by author

CHAD HURLEY

Chad is interested in art and design. He studied graphic design but got interested in computers and taught himself some basic HTML and Web design. His first job took him to California in 1999, during the Internet bubble, where he was the sole designer in a start-up encryption company that later became PayPal. He is now CEO and cofounder of the video sharing Web site YouTube, the biggest provider of videos on the Internet. In October 2006 he sold YouTube to Google for $1.65 billion. YouTube was born when the founders wanted to share some videos from a dinner party with friends in San Francisco in January 2005. Sending the clips around by email was a bust, as the emails kept getting rejected because they were so big. Posting the videos online was a headache too, so Chad and his friends got to work to design something simpler.

Chad Hurley lives close to the IDEO headquarters in Palo Alto, so I was able to invite him to record the interview in one of our studios there. We set up the cameras in a large space with a high ceiling. In the background is the IDEO bicycle park, where people hoist their commuting bikes up under the ceiling with ropes and pulleys, leaving the space below uncluttered. Chad arrived early in the day, carrying a large cup of Peet's coffee, but he spoke so fluently and continuously that I don't think he had more than one sip of his drink during the entire interview, which lasted over an hour.



YouTube homepage
screen capture

YouTube allows everything and all of us to be a spectacle, at least for a moment. But a moment is all we are after, or all we have time for—or so the world of YouTube would lead us to believe.

Carrie Brownstein, *Morning Edition*, National Public Radio, December 28, 2009

CONNECTING VIDEOS

Chad was the only designer at PayPal, so he designed everything, including the logo, credit cards, flyers, the Web site itself, as well as all the ways of dealing with payments online—sign-up flow, sending money, receiving money, auction features, building payment buttons, and eBay transactions. The dramatic success of this last feature led to eBay acquiring PayPal in 2002, so Chad was able to leave with enough resources to take time to work on his own ideas. He stayed in touch with some of the guys back at PayPal, so they could brainstorm about new potential opportunities in the Internet space. Chad remembers where the idea of online video came from.

> This video piece came up as something we found quite interesting just because we had video files on our desktops. We had cameras that could take videos, but there weren't any services that would allow you to seamlessly share those videos with your friends and family. We thought there had to be a market! Flickr was allowing people to share photos, making them publicly available. We found that pretty intriguing and thought there was an opportunity to create an equivalent in the video space, with videos telling richer stories. I mean, photos are intriguing, but video is much more engaging to communicate an idea or experience.
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> When we first started designing the site, we were looking at the video world, trying to define a design around one experience or one type of content—for example, video profiles,

so people could connect with one another. But at the end of the day we realized that we didn't want to box ourselves into a specific category. Coming from PayPal and eBay, we thought that video [would] be a perfect way to describe your products. Initially we had features that allowed people to take a video of a product and put in to an eBay auction, but people didn't use the site in that way.

We decided to create a platform that was pretty general and would allow the users to define the experience, so we provide the tools and sit back to observe how they are using it. It became a generalized platform where people were sharing their experiences, sharing events, and then evolved into creating their own entertainment to distribute to one another.

When we started designing the site, it was difficult to share a video online. We looked at the problems that frustrated us—dealing with different formats of videos, files being too large to share through email, having the person receiving the video be unable to play it, because they had the wrong media player or lacked the correct bandwidth to stream it back at a reasonable rate.

Chad started working on the site in early 2004 with a group of friends who were willing to collaborate for almost no pay, with the promise that they would have equity once funding came through. They met at his house and sketched out ideas on a whiteboard in his garage. A few months later they had a site up and running that people could use, but it wasn't until the beginning of 2005 that they launched officially and raised a round of funding.

They focused on simplifying the experience of uploading and viewing video, solving the challenge of different file formats by reencoding hundreds of video codecs (*co*der-*dec*oder) into Flash. Once reencoded, the videos could be served through Flash players, already installed in 98 percent of browsers. The person uploading files doesn't need to think about the format: YouTube does all the work and processing, reducing the bit rate of the video so it streams for every bandwidth. The viewer can watch using built-in Flash, without thinking about whether they have the right kind of media player.

YouTube logo
photo by Rego Korosi/Creative Commons

Behind the scenes they built architecture with an infrastructure that would scale at reasonable cost, affording them good financial control. They also made the video portable, so that anyone could embed a link to a YouTube video in HTML and put it on their own Web site or blog. This provided a marketing hook to drive people back to YouTube, so that their traffic would grow as the use of the videos spread across the Internet. This business concept was inspired by the portability of the payment button that had made PayPal so successful in the eBay application.

YouTube happened at the right place and time. Video cameras were cheap enough for the consumer market, and video editing programs were inexpensive and easy to use, so that huge numbers of videos were

being created. People just needed some way of sharing them that was easy and cheap, ideally free. At that time bandwidth costs to host and push the data out were plunging. In the 1990s the rates to deliver data made it prohibitive to create a video site, but after the Internet bust too much capacity was available, and Chad was able to find some hosting services with extremely low rates and uncapped bandwidth limits. He signed deals that got them started, but the hosts quickly realized that their business model wouldn't be able to sustain a site like YouTube, so Chad and his team started to build their own architecture to serve the data. They were determined to create a neutral platform, so that anyone could participate with any type of video.

> We weren't going to define the experience for the people who used the site. We wanted the community to rate, share, and view videos, and thereby vote on what was engaging or entertaining to them. We figured this was going to be a much more scalable solution. There was no way we were going to be able to keep up with the amount of video that we were receiving, so we needed to allow the community to populate the pages, bringing the most viewed and highest rated pages to the top.

> The catalog of videos we had at the time was relatively small, but it was already hard to navigate. We continue to have these problems to this day. We receive well over fourteen hours of video every minute on our site. There is no way you can consume all of that video in your lifetime. We had to use the power of the masses to view the content, to curate the site, and now we have millions of people doing that on a global basis for us.

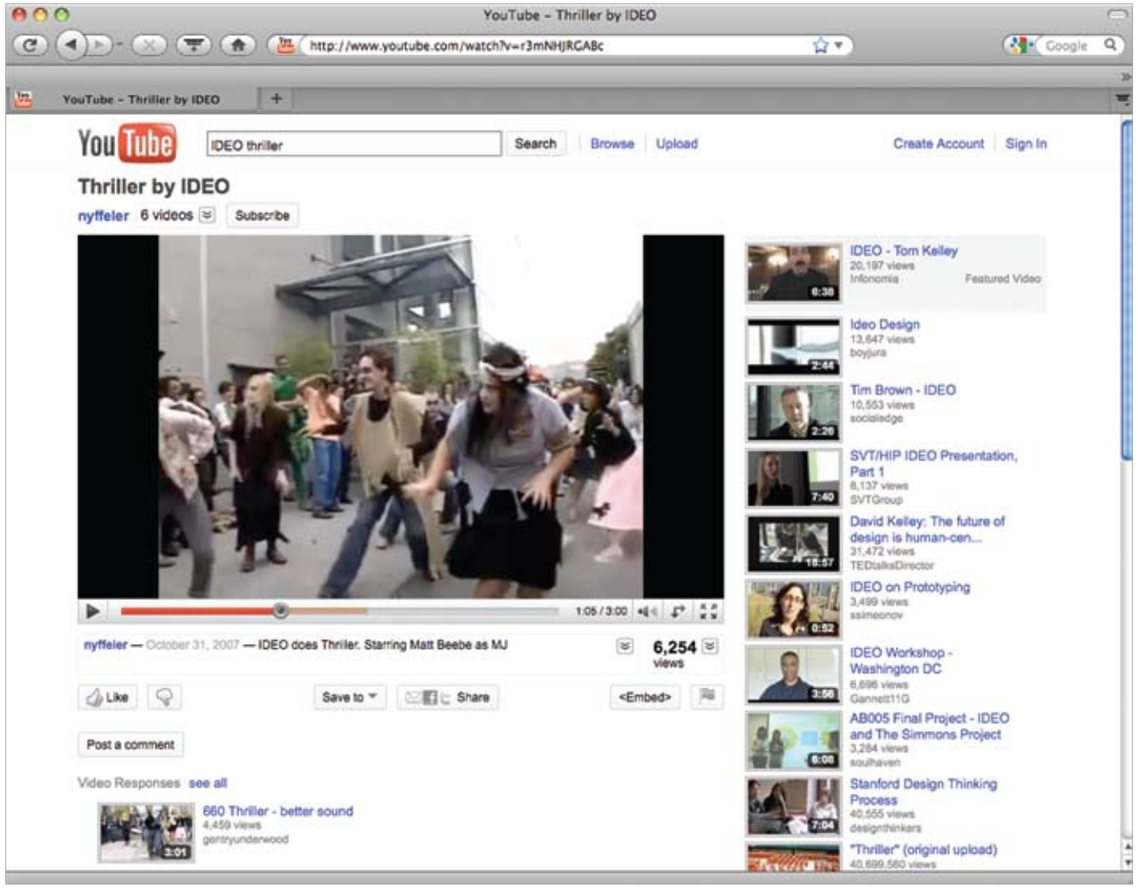
> We still struggle with that! We feel that there can be better ways to sort through the sea of video that we've hosted. Search takes you to a certain point. You can search titles, descriptions and key words, or any other element of the metadata associated with the video, to try and find what you're looking for. You can also use the community to define things by entertainment, or engagement by numbers of views and ratings. We are still looking for new ways to catalog and categorize videos, so that people have an experience that they can dig through.

> I think a lot of services struggle with this, even iTunes. They have millions of songs. People primarily consume the head of the content. They have search, but also they have an editorial team that's trying to program pages for them and feed content to people. We have a much broader pattern of consumption than the head alone, so we're always looking for ways that don't just focus on a narrow segment of content but also unlock the entire tail beyond views and ratings. There's probably an approach to get the community more involved, but we just haven't put our finger on it yet.

DESIGNING THE YOUTUBE WEB SITE

Chad wants to build both a platform and a community. YouTube is winning against the competition because people who are creating their own content are allowed to interact with others in their personal networks and interest groups. YouTube has become the de facto standard for freely shared online video. It also makes tools available to content providers to help mitigate copyright infringement. Chad believes that in order to create a successful design for a community, you have to design an interface with a look and feel that people can relate to and trust.

> I designed everything—the YouTube logo, the interface, and the design of the entire Web site. If someone is trying to create something in a very professional way, they sometimes make it overproduced and too slick, so that people don't want to participate in the community because they don't trust it. It feels corporate. I think that eBay, Craigslist, Google, and potentially YouTube have been successful just because they look basic; they look like the community designed and built them. I tried to apply that idea when designing the site. I didn't go for any slick kind of new HTML code that would give fancy rollovers; nor did we build the entire site in Flash, even though we are serving Flash video. It was a basic kind of HTML construction with blue links.



"Thriller" remake by IDEO, YouTube
screen capture

I did worry about branding, because I think branding is very important in the world of design, in that you want people to remember the product they used, so I tried to come up with an easy-to-remember name. It took me about a week just trying to think about the name. We were trying to express this idea of personal television. The name YouTube is a play on that—a playful kind of word that people could relate to, wrapped into a simplified logo, so that people could get a sense of what our site is about.

NEW REVENUE MODELS AND LEGAL RIGHTS

By the end of 2008 YouTube had grown to nearly three hundred people at its headquarters, plus a similar number shared with Google around the world, but it was still lean and mean compared with the overall size of Google. Being acquired by Google has given YouTube access to talented people to help build the site as well as more resources to build the architecture that they need to improve the speed and quality of the videos they're serving. They are also encouraged to preserve the start-up culture of the company and the kind of the environment that they work in. When Eric Schmidt, Larry Page, and Sergey Brin approached Chad about acquisition, they assured him that they wanted the people at YouTube to be empowered to make their own decisions. Chad is still focused on progress:

> I still feel like we're taking it day by day. I guess we haven't had much time to reflect on everything that's happened because there's so much yet to be improved, and we're trying to build a new model for media distribution. There are services coming out that are just replicating the past, by building traditional distribution models for network consumer content. We want that to be part of our platform, but we want everyone to compete on a level playing field. Everyone should have the same stage, and we don't want to be biased and make decisions toward one type of content versus another.
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> We feel that there should now be an opportunity for creative individuals around the world to produce content and support themselves. We're already starting to see that, with users on our site making hundreds of thousands of dollars. These are individuals in their homes that have an opportunity to support their creativity. It's just the tip of the iceberg, as people now have access to the tools, distribution, and audience that we provide. They'll be better at telling the story, better at creating a piece of entertainment, better at sharing their experiences through the power of video. Look at Smosh, for example. They're some college kids who create goofy little comedy

skits. They're making pretty good money creating short pieces of entertainment that generate massive audiences, the same audiences that you might typically associate with TV shows.

People still like to throw YouTube in a box in terms of just being about silly cat videos, implying that user-generated content is useless because advertisers don't want to associate themselves with it. I think we're seeing a dramatic shift, that advertisers who associate themselves with this kind of grassroots media have higher engagement. Users are more responsive to ads that are placed against user-generated content than traditional, professionally produced content.

Google has helped YouTube develop more sophisticated business models for advertising support, allowing them to continue with a free service to consumers. They offer a "partner program" for ad placement, with thresholds for time in the system and number of views to trigger ads. Some are in a separate window on the page, others on a small banner along the bottom of the video window, plus pre-roll or post-roll videos. This combination yields enough revenue to keep YouTube profitable and also to share with the partners who created the video. It works like AdSense for Web sites, where Google makes some revenue from the ads that are placed on the sites, but the majority of the revenue goes to owners of the Web sites.

The new revenue models that are emerging for online distribution are in conflict with the complex mechanisms that have evolved in the past, particularly for music, but also for video. In music many different people own a piece of just one song—the songwriters, publishers, labels, artists, and rights-collecting organizations. The new models that are emerging make it difficult for them to adjust. Family members often inherit rights after the original creators are long gone. Nobody knows who owns what, and the record labels have no incentive to sort it out because they don't want to pay anyone. The television networks are similar: they have large catalogs of content that just sit there because it's too expensive to sort out the rights for online distribution.

YouTube has tried to approach this morass of confusion about rights from a new angle. Instead of just identifying music through audio fingerprinting and taking it down, they've created opportunities

YouTube
photo by Thomas van de Weerd/Creative Commons

for the record labels to have a new revenue source. As each video is uploaded, it is run through a content-ID system for music, which makes a fingerprint of the audio file and compares it to the YouTube music catalog. All the major record labels have subscribed to this catalog and defined rules about how the music should be used, so it's either taken down because the user doesn't have the rights associated with the video or left up for marketing reasons. The motivation to leave it up could be to generate sales though links to online retail sources, to allow ads to be placed against it to generate revenue for the record label, or just to expand awareness of the music. Now the users have a free and legal way to be creative with music within their videos that didn't exist before.

All these complex issues of revenue generation and legal rights seem far away from Chad's background as a graphic designer. He may have started off designing approachable Web sites, but now he seems to be

a successful entrepreneur designing revenue streams. He thinks of this as a natural evolution.

> Design for me is always about just trying to solve problems, whether it's visually, conceptually, physically, or virtually with a Web site. You're trying to relate to people through the way that you put something together. At first I was designing the essence of the site, from the logo to the interface. That evolved to building the team that we needed to make the company successful, building it into a sustainable business. That transition from designer to CEO is something I have viewed as the same thing. You're still trying to solve problems.
>
> Everything we've done from the beginning has just been based on trusting our instincts. When you're trying to move at speed, you just have to make decisions. You can't hesitate. Too many times people create companies for the wrong incentives. Instead of thinking about the problem, the product, service, or site that customers want to use, they're thinking about the business model and what's going to make them a lot of money. We knew our service was going to be ad supported. That was our business model. We knew that if we had a large audience, a global community, that we'd be able to build a great business off of that, so we focused on the design for the people in that community.

Different forms of moving-image media are no longer easy to distinguish. Film, television, and online video are all digital, where the same content can be delivered across a wide variety of platforms, scalable in size and resolution. Inexpensive tools for creating content have made for endless supply, as anyone, anywhere, can create a piece of video at anytime. Chad welcomes this democratization.

> You used to have scarce distribution. Not only were the select few controlling the creation, they were also controlling the distribution, and both of those things are disappearing within our world. I think that changes things tremendously because everything from the theater, to your TV, to your computer, is going to be connected to the Internet. Every device is going to be IP-enabled, and you're going to be able to receive any piece of content, at any time, through any device. This new world is approaching faster than anyone ever expected.
>
> People have talked about IP TV for a long time, but they have been thinking about it in the wrong way. For example, the telcos have been building libraries of content to deliver on demand to the television set. I think there's just going to be video that people access from anywhere that it resides in the cloud, delivered to any device. There won't be specific libraries that are defined as IP TV.
>
> I think there's probably going to be an evolution to a media RSS feed, a more intelligent way to index video content across the Web. When you access a piece of video, not only will you stream it to your device, but it's going to be wrapped in some type of rule or rules around its usage. Either you're going to be paying a per-play rate for what you or your service consumes, or that content may be wrapped with some kind of rule for advertising. The ad can be pulled from the person who owns the content, from a third party, or from a site like YouTube.

THE DOMINANT POSITION enjoyed by YouTube and Google has some detractors, as many people have concerns about big companies creating monopolies and being motivated by business values rather than social conscience. Alexandra Juhasz teaches media studies and is interested in the political and artistic uses of media. In the next interview, she describes her studies of YouTube and her misgivings about the cultural change that is radically altering society and the landscape of media.

ALEXANDRA JUHASZ

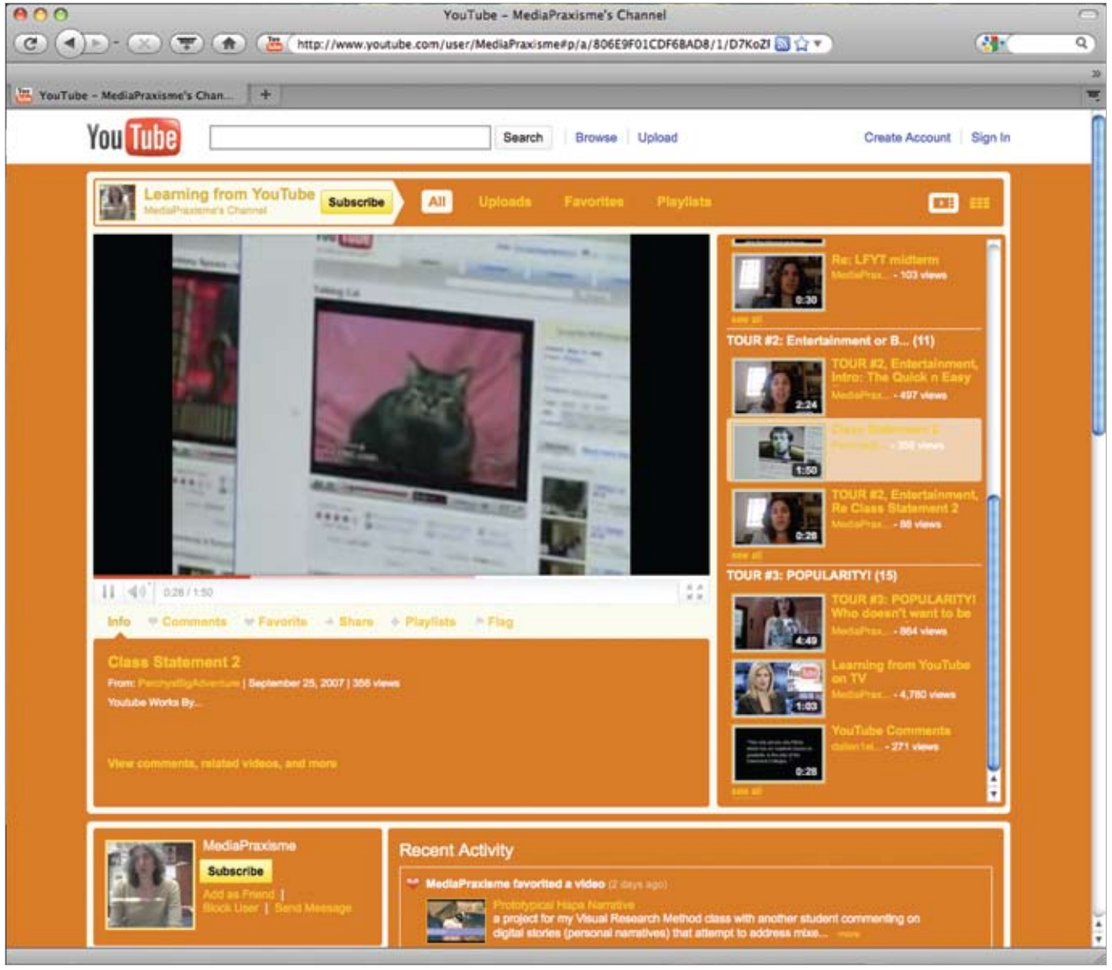
Interviewed October 28, 2008

← **Alexandra Juhasz**
photos by author

ALEXANDRA JUHASZ

Alexandra is a professor of media studies at Pitzer College in California, where she teaches video production and film and video theory. She is interested in the political and artistic uses of media and in theories as well as the production of media in relationship to political or personal issues. In the mid-1980s she was producing AIDS activist videos in New York and then writing about the processes for her PhD in cinema studies from New York University. Since then, the themes have changed, but her commitment to projects that involve both creating material and theorizing about its rationale has been consistent throughout her work. She has taught courses at many universities on women and film, feminist film, and women's documentary. Her current work is on and about YouTube and other more radical uses of digital media. Her "video-book," *Learning from YouTube*, about her course and YouTube's failings more generally, will be published by the MIT Press in Fall 2010. She also recently produced the micro-budget feature film, *The Owls* (Cheryl Dunye, 2010), which premiered at the Berlin Film Festival.

Alexandra lives in a tree-lined residential neighborhood of Pasadena. I flew down from San Francisco with my video gear a week before the November 2008 election and found her wearing a T-shirt printed with Obama's face and the words "Another Mama for Obama" with the *O* of Obama modified as the peace symbol. It was a beautiful day, so we sat in the garden, with the shade of the trees occasionally changing to dappled sunlight. As we talked, we were interrupted every now and again by a low-flying plane overhead or one of her dogs barking.



← **Alexandra's YouTube channel**
screen capture

WHAT'S WRONG WITH YOUTUBE

Alexandra has given a lot of thought to the social impact of YouTube. She teaches a class both about and on YouTube, studying it with her students to try to understand the cultural implications of the new level of connectivity for video. During the run-up to the 2009 election, she was looking at how the broad circulation of people-produced media was affecting the outcome, feeling optimistic about the positive impact for the Obama campaign. She is more critical about other aspects of the emergence of YouTube, disappointed that the potential for democratization is not fulfilled.

> I study YouTube, and I think YouTube fails to deliver the promises of these new technologies, namely, the ways in which they really could enhance our ability to communicate, open up channels of discourse, and allow people to build things together. When I tried to do something serious there, teaching a college course, we all found that that the communal building of knowledge simply can't happen on YouTube, and I am interested in studying why not. For instance, my students and I learned that the idea that YouTube is "democratic," which is one of the ways it sells itself, is simply untrue. Instead, as is true for many of these social-networking applications, the structure of popularity is how YouTube is organized. The more something is voted for, the more visible it becomes, and it dominates the terrain.
>
> Everything that is not popular, what I call "NicheTube," is almost invisible; it's very hard to find. And so you get a kind of democracy of the loudest voices, and not even just the loudest voices. The videos that tend to rise in popularity on YouTube

express very hegemonic understandings of our world in a loud and clear fashion. These are things that already make us feel comfortable, usually jokes, parodies of things we're already familiar with, or reiterations of popular culture. In a democracy, you don't want to only hear things in the public sphere that you already know, that you're already comfortable with, that you've already seen. That's not the democracy I want to live in.

The invisibility of the underlayer on YouTube is of great concern to me. Because the search function is so poor and the site always pushes the most popular into your face, you probably will only rarely see the people who are expressing alternative viewpoints. It's not exactly a flattening of culture. It's like there's two layers, really. And they don't ever speak to each other.

With her background in political activism, Alexandra thinks a lot about counterculture and what it feels like to view mainstream society from the outside. Her work has been committed to people who are critical of society and who occupy that analytical or oppositional space comfortably. She finds the idea of popularity extremely troubling because in her eyes it only offers a limited and juvenile way to organize life. She came to YouTube as a scholar and maker of activist media, wondering why she felt instinctively repelled by the YouTube experience.

People kept sending me clips through email saying, "Oh, go watch this video on YouTube." And I'd go and it was always just some ridiculous piece of fluff; some thirty-second joke about popular culture which I'm not particularly invested in anyway … and half the time I didn't get the joke, and if I did get the joke, it was at somebody's expense. It was this really low form of media production and for a while I just ignored it. I said, "You know, I don't understand what's going on here. I don't really care. This isn't what I meant when I said there was going to be a revolution."

And after maybe six or nine months, I thought, "It's ridiculous that I'm not paying attention to this," so I devised this innovative course, "Learning from YouTube," where I thought my media-savvy students and I could work together to study, analyze, and name in real time components of a cultural change that was radically altering our society and its media landscape.

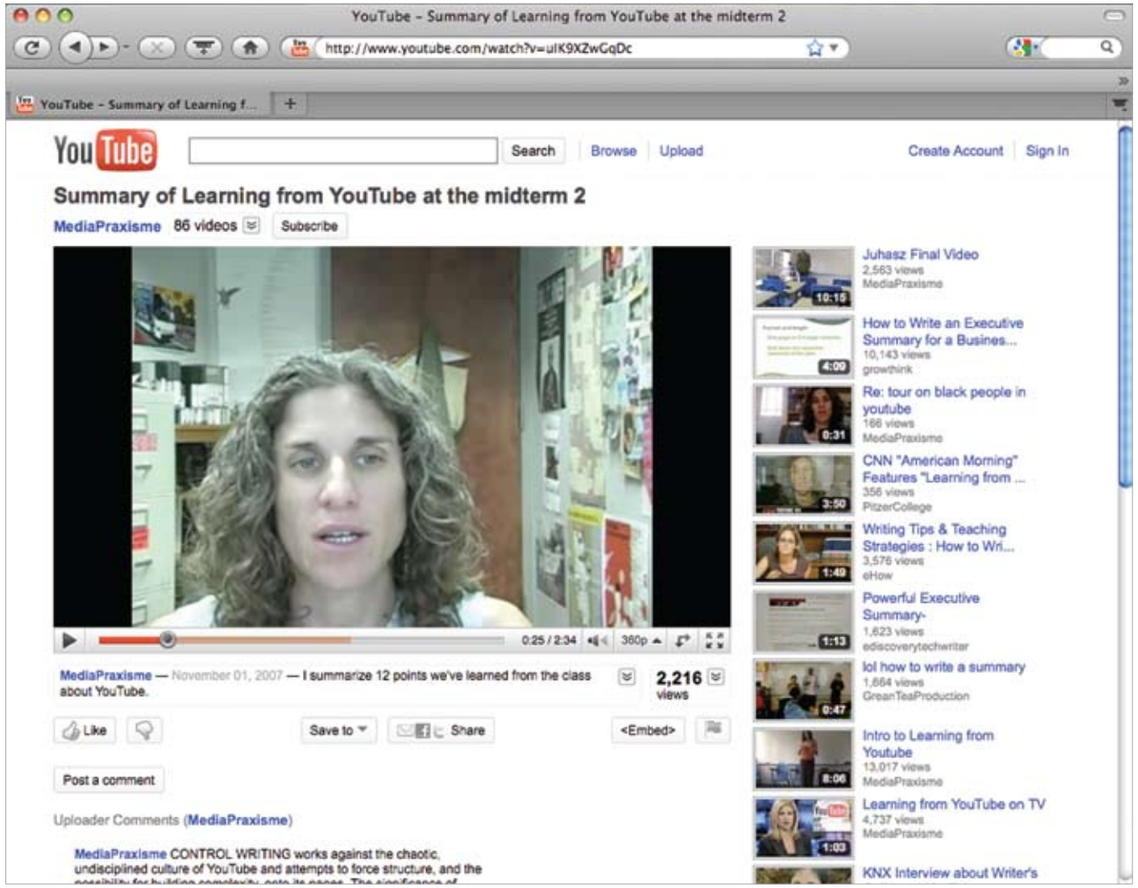
Alexandra recorded all the class sessions on video and only allowed the students to present their work on YouTube, so that they were continuously experiencing the medium as they developed their research. She asked them to consider why, with the opportunity for people to make and share video, the resulting material is so uninspiring and insipid.

She realizes that, although we've been raised in a culture surrounded by images, most of us are not fluent makers of images. We are better equipped as writers of words because of the literate nature of our education, so the sudden access to the tools to make video has not been paired with access to education about media production. You don't have a rich vocabulary to express yourself in sophisticated ways with the new tools just because you have access to a camera and an editing system.

Typical YouTube videos, the bad ones made by ordinary people, are uncut, without concern for framing, lighting, or the quality of the cameras. We've never seen such bad video, really. What would those video blogs be like if we could imagine a small amount of visual sophistication?

The other question for me is one of content and not just of form. What kind of education do regular users need to express things profound, or things personal, or things critical? You hope that people will gain the ability to think about formal complexity and to learn from what's around them, but at the same time, that has to come with the belief that they have something valuable to say themselves. (I do, of course, believe everyone does!) Most of what you see on YouTube is mainstream culture, either repeated or parodied, and gives us no insight into the daily thinking of regular people, outside their fascinations with media.

There really are two YouTubes. If you think about book publishing, or film, or other previous forms of mass media, it wasn't so strongly just one or the other: people-made (badly



Alexandra's MediaPaxisme, YouTube
screen capture

made) and corporate (well-made). There was all of this finessed space in between a Hollywood blockbuster and a micro-budget avant-garde art film where very sophisticated work occurred, for example, indie films.

The research completed for the "Learning from YouTube" class up to the end of 2008 concluded that at least half the content was professionally produced, making corporate produced media predominant in an environment that is thought to be democratic. The vast majority of videos are made to sell things, often music, and people often repurpose this corporate media for their own production. Fans can make inventive and self-expressive material by hacking, reformatting, or repurposing mainstream content, but Alexandra is more interested in productive and critical expressions that step away from the production of some corporation and provide a personal vision of the world. She is exploring what else is needed, besides access to the tools, which simply facilitate recutting professionally produced corporate video, to grow ideas, abilities, and possibilities that will make our society better. She believes that teachers are needed to provide structure and give the leadership to organize the discourse.

> You need people to say, "For today I'm going to 'discipline' this space." I use this word with quotes because it's been very hard for me to realize that I want someone coming into this anarchic space to discipline it. If you're hoping to reach goals at the end, there is some taming, defining, and purposing that needs to occur. Wikipedia is probably the most successful model of these user-generated learning communities, and YouTube is not, because it's at once completely anarchic but then actually controlled very fiercely by the corporation that owns it. There's only the artifice of user control. We might want to imagine a real community where users are producing everything.
>
> It's the imperative of corporations to make money. I see that particularly on YouTube. The result of my analysis of the site is simple: what they want you to do is move as quickly and unpredictably as possible from one thing to another, because that is how they are going to get your eyeballs to ads. It's a perfectly viable model for making money, but it's not a viable model for moving expression and art through a culture. You can see in YouTube the profound constraints that are written into the system because it is organized first to make money, not democracy, culture, community—and certainly not revolution.

NEW CONNECTIONS FOR VIDEO

Google purchased YouTube in 2006 for $1.65 billion. That in itself was a powerful vote of confidence that Chad Hurley had led the company to a position of dominance and that YouTube would withstand competition to stay in a lead position. By 2009 the services had been improved with effective search and the introduction of high definition, eroding the validity of many of the criticisms about YouTube being designed for the lowest common denominator and showing that Chad's philosophy of trying to encourage independent video producers had some legs. Google and YouTube are dominant financially, making them seem like big bad business to many radicals, but there is an element of idealism in their philosophy that separates them from previous generations of dominant businesses, and the services that they offer for free are irresistible to almost everyone. *(See the interview with Larry Page and Sergey Brin in chapter 7 of my book* Designing Interactions*.)*

Online video is emerging in a hockey stick joyride curve of expansion *(see the interview with Paul Saffo in chapter 1)*, fueled by inexpensive video cameras and desktop editing, combined with the arrival of adequate bandwidth for viewing on personal computers and handhelds. This means that video content of all types is becoming available online as well as in traditional media, so the door is open for new connections. Entrepreneurial offerings are springing up for a host of specialist applications that complement the dominant YouTube.

One of the more elegantly designed Web sites for delivering TV shows and movies is Hulu.com, offering both short clips and full-length videos for free. The site is ad-driven, with integrated video ads and banners played during the streaming of content. Hulu was founded in 2007 as a joint project of NBC Universal and News Corp., partnered with several consumer portals, including AOL, Comcast's Fancast.com, MSN, MySpace, and Yahoo! Consumers can enjoy lots of popular TV shows and movies from content providers, leveraging the material owned by NBC Universal and News Corp. Vimeo is another cleanly designed video sharing Web site that allows people to publish their videos for public consumption or just for friends and family. Hulu and Vimeo may not be a competitive threat to YouTube or iTunes, but they offer attractive choices for consumers to gain more access to video content. Apple is educating consumers on the benefits of watching video through iTunes Movie Rentals on iPhones, iPods, and Apple TV devices, and companies like Netflix have pioneered the movement from physical DVD rentals to downloading streamed versions on demand.

THERE ARE ALSO OPPORTUNITIES for subscription services, offering business-to-business solutions for integrating video onto Web sites. An early innovator in this space is Brightcove, founded by Jeremy Allaire and Bob Mason. In the next interview, Bob and Jeremy Merle, who led the user interface design team, explain their approach.

BOB MASON WITH JEREMY MERLE

Interviewed November 12, 2008

Bob Mason
photos by author

BOB MASON

Bob Mason cofounded Brightcove in 2004 with Jeremy Allaire. They saw the possibility of a complete end-to-end solution to deliver video from any creator to any customer, across diverse devices, allowing content owners to have the same breadth of communication that had previously been limited to major corporations and media companies. Jeremy took the role of CEO and Bob CTO as they set about designing an online video platform to be used by professional publishers. Bob provides leadership for Brightcove's vision, design, and architecture. Before founding Brightcove, he was a founding member of the product team and a software architect at ATG, an innovative and market leading e-commerce software provider.

JEREMY MERLE

Jeremy Merle is the Director of Product Design and User Experience. He leads the team that defines Brightcove's visual identity, user experience and product design, focusing on developing designs for the unique needs of individual groups of users while at the same time achieving consistency across all the different modules.

← **Jeremy Merle**
photos by author

The offices of Brightcove are located across the street from the MIT Press, so I was able to interview Bob Mason when I was in town to talk to Doug Sery, a senior acquisitions editor, about publishing this book. After recording a conversation with Bob, he suggested that we set up my cameras to capture a demo of the product, including his commentary. I could tell that he had presented that demo many times before, as his descriptions were obviously well rehearsed. Afterward he asked if I would like to meet Jeremy Merle, the leader of the interaction design team, so I was also able to record a short interview with Jeremy as well.

← **The Brightcove platform**
images courtesy of Brightcove

ONLINE VIDEO

Brightcove offers an on-demand video platform that allows content owners to publish, distribute, and deliver content to their audiences. It provides back-end tools connected to front-end user experiences, so that customers can use the Brightcove authoring tools to bring video to consumers in specifically tailored solutions that are fully integrated with the rest of their businesses.

> **Bob:** We have to have really good design of the usability of our back-office tools, be cognizant of the latest consumer trends and of what's happening in the social-networking space, and try and make sure that our customers' online video business is successful and meeting their audiences' needs. We've been focused on allowing non-media companies to have the same powerful tool set as our media company customers. If you're an institution, the government, or a corporation with a message you want to deliver to your audience, you can use the exact same things that one of the top five channels in the U.S. would have been able to use in the past.
>
> We have focused on trying to make the system as simple as possible. Literally, if you have video content and you can encode it digitally, you can upload, launch, and create a video player experience in less than thirty minutes, skin it, brand it, put in on your Web site, and it's all done instantaneously. That is our design mantra.

Much of the Brightcove offering is transparent to the end user. They have developed software that allows the user to find video on a Web page and play it without adjusting settings or waiting for buffering. The software automatically recognizes the available bandwidth and adjusts to it: If it sees a high-speed connection, it delivers a high-

quality version of the video. If it recognizes an overloaded wireless connection, it automatically degrades the quality of the video to avoid stuttering or long buffering times. The system infrastructure is also designed to accommodate lots of individual variability, cause by sudden peaks of traffic generated by special events like weather, sports or politics. One customer's spike in usage is another's trough, so collectively no single customer needs to over-provision hardware when they have temporary spikes. Bob has attempted to optimize the balance between automated solutions and allowing human judgment to play a part:

> When we start thinking about how you want to promote different videos—why is this video important to associate with this other video—there can be metadata matching and some algorithmic things that allow things to be connected together, but in many circumstances, there's an innate sense of understanding who your audience is, what content you have available, what's occurring during the day today, and what the news is. Trying to tie all those different things together really requires someone who has an intimate knowledge of their audience, and giving them some manual controls is really important.

Brightcove is a software service business, with all revenues coming from license fees. Price structures vary depending on the size of the customer's organization, the complexity of the business needs, and the number of videos that people are watching. Free tools and services for video delivery work adequately for consumers and prosumers, but there are many levels of demand from businesses and organizations where people are willing to spend thousands, even tens of thousands of dollars, a month to have a very robust and reliable system, with relationships that encompasses strategic vision, account management, and sophisticated customer support. Bob talks about the positioning of his offering in comparison to the free services:

> What is interesting about YouTube is the question of what's good enough. We spend hours on end watching a high production value on television or going to the movies, but there is an equal amount of interest and engagement around stuff that is lower quality and valuable in a different way. That is what YouTube proved out in the marketplace. Though the video quality experience is mixed in YouTube, the total user experience allows people to get very engaged in a different type of environment.
>
> You see other content-oriented sites, like Hulu, delivering high-quality content and a very rich user experience. People really resonate with that, whereas they are looking to YouTube to provide a different type of experience. Each company has their own challenges. Obviously Hulu would love to have the audience that YouTube has, but for YouTube it's more difficult to monetize. From our perspective, our content partners are really looking to be able to communicate directly to their audience. YouTube, Hulu, and all these other video platforms are important as part of their distribution strategy, but fundamentally they want to have a relationship directly with their audience. That's where a platform like Brightcove really provides a lot of value.

At the time of this interview, in 2008, high-definition (HD) video was still not very widespread. It had reached farther into television distribution than online, helped by satellite and cable, but it was not prevalent online. The limitations came first from bandwidth, with countries like Korea making the infrastructure investments to allow distribution, but the United States still lagging far behind. Screens with 1,920 by 1,080 pixels to deliver full HD were also limited and expensive, but the signs of change were already there, so what are the implications?

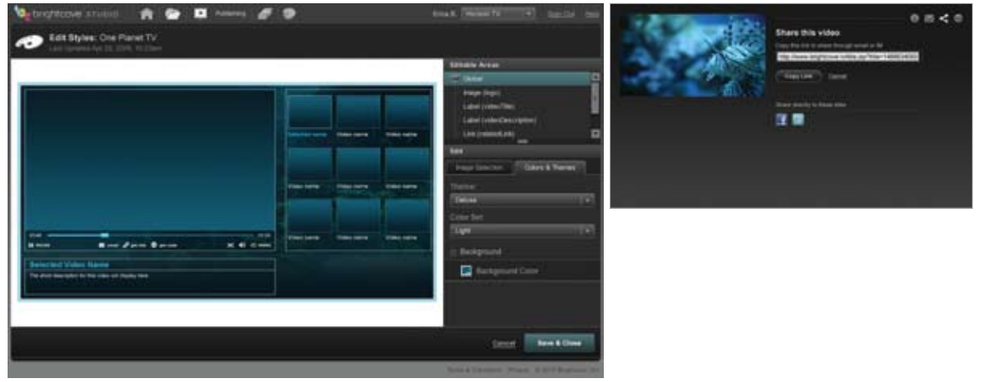
> I think the investments that the phone and cable companies are making to improve bandwidth in North America will facilitate a reduction in the differentiation between what is online video versus what is more traditional broadcast media. I think you'll start to see fluid connections between your PC experience, your mobile experience, and your television experience. That will be particularly exciting over the next five to ten years.

In many circumstances the problems around online video delivery are going to increase in complexity over time, and having a strong technology platform and vendors to help people wade through that will allow them to focus purely on what they do best: create great content. In the early days of the Web, you had many companies that built their own content-management systems as well as their own ad-serving systems. The market eventually got to a state where you had very large successful companies that addressed and tackled those particular areas. I think we are at a similar early stage of recognizing that trend in the video space and anticipating a broader platform investment that companies are going to need around rich media in general.

I think there'll be a lot of interesting things that happen from a technology perspective—increased usage of HD; fluid access of content from mobile devices to PCs, to televisions—but I think what will be most interesting is just the breadth of stories that will be able to be told. You'll start seeing content produced by companies that you would not normally think of as a traditional media company or a video company, but they are going to be broadcasters in this space, and they'll have equal rights to be able to reach and build their own audiences.

DESIGNING THE INTERACTIONS

When Bob and Jeremy started the company in 2005, they created a design based on a linear workflow, with tabs separating each major step. First was a Dashboard tab, with tutorials and explanations of the terms used to structure the interface. The Assets tab enabled uploading of images and video, which could then be packaged into video Titles, consisting of a package of metadata and media that could be displayed to an end user. The Lineups tab allowed choices about organization of the material, from full manual control to completely automatic using self-organizing algorithms. Under the Players tab, templates allowed the speedy creation of video experiences without



Brightcove player styling and player menu
images courtesy Brightcove

writing a single line of code by adding branding treatments and selecting the desired appearance elements.

By the fall of 2008 they had completed a redesign based on a better understanding of the behavior and needs of their customers. They launched a new product called Brightcove 3, replacing the tabs with three main workflow modules: one for managing media, a second for publishing video, and the third for controlling advertising. In the Media module, a unified interface offered the ability to manage what had previously been separated into the Assets, Titles, and Lineups tabs, with simple drag-and-drop actions. Playlists could be published with the aid of dialog boxes, choosing between manual control and Smart Playlists, with search-and-sort choices. Once the content was organized, it could be easily programmed into different video players. In the Publishing module, templates were provided for creating players with unique appearances, drawing from libraries of navigation tools, fonts, and colors. The results were instantly available and updated in real time. The Advertising module offered control for the person interested in revenue generation. The video library and players could be set up to manage campaigns by adding advertising "Key Value Pairs," turning ads on or off for different videos, or setting up the ad policies for the players, for example, pre-roll, mid-roll, or post-roll ads.

Jeremy Merle is a user-interface designer focused on understanding the people who will use the product. The research that his team conducted identified three main stakeholders: media producers, design integrators, and business developers. The media producers programmed content, assigning all of the attributes, grouping,

Examples of Brightcove's media organization
image courtesy of Brightcove

uploading and ingesting the content, and then programming it into the appropriate video player. They asked questions like, What's the name of that video? What description of it should appear on the Web site? and What related links might there be and where that should they go? The design integrators were focused on the look and feel of the players and how the branding integrated into the Web sites that they were developing. The business developers were more focused on revenue, advertising, and advertising policies—which ad should play and when, and how the revenue generating mechanisms should be programmed into the content.

> **Jeremy:** As part of the new design, we looked at breaking Brightcove down into separate modules that are focused on a separate user experience—but which are also consistent throughout the whole product. There is a place where producers can group their content, organizing it into Playlists, and then grouping those Playlists and programming them into video players. There is another part to focus on creating the video player and choosing a template or layout to put on the Web site, and organizing the look and feel of the player experience—selecting the color and fonts to match the company's brand.
>
> Some of our customers spend all their time working with a single module, but there are also people who cross back and forth between all of the modules. I think we've done a nice job to add the consistency not only with the visual design but also with the interaction metaphors, so that if someone is using the video player in the Publishing module and then they switch over to the Media module to organize content, the behaviors and gestures are exactly the same. They are essentially familiar with the application without using it. In the future I think we will continue to move toward seamless integration, focusing on how users are interacting.

IN THE NEXT INTERVIEW WE STEP ASIDE from the world of online video to learn more about the most minimal of—and perhaps most surprising—new connections. How and why has Twitter become so pervasive? Why is a real-time message of less than 140 characters so attractive? Ev Williams reveals the secrets.

EV WILLIAMS

Interviewed December 2, 2008

Ev Williams
photos by author

EV WILLIAMS

Ev is very entrepreneurial and likes to create products and companies. He enjoyed programming at high school in Nebraska but dropped out of college to found Plexus, a CD-ROM development company. He came to San Francisco to be closer to the Internet boom, worked for O'Reilly Media for a short time, and then cofounded Pyra Labs with Meg Hourihan to make project-management software. A note-taking feature spun off as Blogger, one of the first Web applications for creating and managing blogs. Google acquired Pyra Labs in early 2003, but Ev was not comfortable in a larger organization, so he left Google in October 2004 to cofound Odeo, with the idea of combining streaming audio with blogging. While there, he experimented with real-time short messages, leading to the start of Twitter. In late 2006 he created a new company to combine Odeo and Twitter. He then sold the Odeo part of the enterprise and focused his energies on developing Twitter with his cofounder Jack Dorsey and the design team that they had by that time assembled.

The Twitter offices, with their generous paned windows and large advertising billboards on the roof, are located on a handsome office block in San Francisco. Ev Williams sat on a couch as we recorded the interview, with a series of rooms behind him giving on to the main corridor and light streaming through from the outside windows. It was around lunchtime. The kitchen was the first room, so we saw people coming in to pick up a cup of coffee and a snack or returning from a trip out via the elevators. It felt like a friendly community of cheerful young people enjoying their opportunity to develop new software together.

Tweeting
photo by Nicolas Zurcher

A SERIAL ENTREPRENEUR

Ev Williams was young when he started hacking around, trying to figure out how to build things. He stumbled on the Internet and knew intuitively that it would be the next big thing, so he set about teaching himself HTML, graphic design, and Web application development skills. He started a family business in Nebraska with his brother and some money from his dad during the early years of the Internet boom. They created a couple of CD-ROMs and tried many different projects to build software and media products, learning as they went along, spending sixteen hours a day for several years gradually acquiring expertise. After a while Ev became frustrated with the lack of money and ability to create the types of products he wanted to design, so he headed for California. He got a job with O'Reilly Media, the book and Web publisher, to develop Web and server software.

> I actually didn't survive too long as an employee, even though it was a great company and later was very useful for me in terms of connections and support. But I didn't like being an employee, so I left there after a few months and started working as a contractor doing Web and Web application development. This was mid-boom time, in 1998. After a year or year and a half my confidence was bolstered enough to take on another entrepreneurial venture.

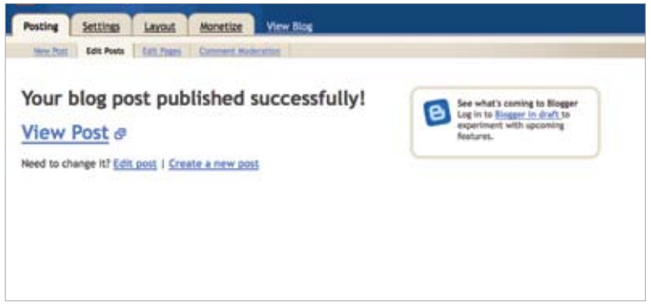
Ev cofounded Pyra Labs with Meg Hourihan to develop Web-based tools for project management and team collaboration. He had lot of theories about personal information manager (PIM) software, as he was always trying to get his own head more organized. When the Web came along, and he was working with other people in teams, it seemed obvious that the tools should be online and support collaboration. At that time Microsoft Outlook was dominant, but he felt that the design of their PIM/email task management offering was

stilted. He had a lot of innovative ideas about linking email to tasks and making events and messages task-related.

> Blogger came shortly after the PIMs for a very similar reason. Weblogs were just becoming a thing in early '99, at least the thing people talked about, and I and a couple other people on my team read Weblogs, plus I'd always had a personal Web site which I turned into a blog. I had written a script just to allow me to publish to it; just a tool that I used myself. I've always been very selfish in designing, when using something it occurs to me how it could be better or what I want it to do. So that's where I always start.
>
> My script meant that when I had a thought I could put it on the Web, and I found that really changed the dynamic of having a personal site. It was pretty exciting and tapped into the whole idea of blogs, and more importantly automated the process of publishing. That was the initial spark for the product, and then there was a lot of theorizing about whether it was worthwhile to build and if we should build it, but as it was so simple and we could do it quickly, so why not just throw it out there? And that worked!

Jorn Barger, the editor of RobotWisdom.com, coined the term *Weblog* in 1997. The short form *blog* was coined by a friend of Ev, Peter Merholz, who jokingly broke the word *Weblog* into the phrase *we blog* in the sidebar of his own blog in 1999. Ev soon adopted *blog* as both a noun and a verb and devised the term *blogger* as a brand name for the tool that he was developing, leading to the widespread use of *blog* and *blogger*.

> We always said we were creating a tool for Web geeks, and we considered ourselves to be part of that group. That was a great idea at first, but I think it kept us a little bit out of the mainstream that we could have gotten to faster. It was always just, "What do we want in this tool?"
>
> We made odd choices because we thought we were going to build a tool that lets you publish to your existing Web site, so Blogger would transfer files from our server to your server, assuming that everyone had their own server and they knew how to set up FTP. At first we didn't offer any predesigned



Publishing a blog post
screen capture

> templates, because we assumed you would want to create your own design. Obviously a much more mainstream audience has neither of those things. They didn't have a hosting provider, and they wanted to choose a pretty template. That allowed us to create something very simple at first that did attract people like us who had followings already and had some influence. Eventually we enabled a wider audience to tap into the same desire by making it easier and easier.
>
> You can't invent something new by going and asking people what they want because they don't know, but I think you can invent something new by imagining yourself what you may want and then being more free thinking. Once that exists, in order to make it better you've got to start listening to people. That's what happened with Blogger.
>
> For a long time we were listening to our early adopters, who were always our core customers and important to us, but their needs weren't the same as a more mainstream user's needs in the long term. We focused a lot on building more power features when we could have been working on the ease of use and the more mainstream stuff. That was a really tough choice. I think it comes up with a lot of Web apps and other software. We had to make a choice and we weren't very disciplined about making it at first. Eventually Blogger found its place, to become a mainstream blog publishing tool that is easy to use, but without the most features.

Ev did the initial design of the site himself, but when he was pushing for a more consumer-facing design, he asked for help from an accomplished Web designer, Derek Powazek, who created the orange Blogger logo and helped to make the site seem fresh and accessible.

Pyra Labs launched Blogger in 1999, and Ev raised half a million dollars to expand the company and put a team in place, growing to a peak of seven people in 2000. Then the dot-com bubble burst and resources suddenly dried up, so that by the beginning of 2001 Ev was the only employee, running the service from soup to nuts. This limitation on resources forced him to keep the design simple, as he couldn't write code for sophisticated new features at the same time as keeping the service afloat. He was always trying to grow, always trying to reach the mainstream audience, but he was paying the bills with a subscription service aimed at the more serious niche audience. He persisted and gradually expanded the service, increasing the server capacity and keeping the quality of the experience rewarding for the ever-increasing number of people who were taking advantage of the site to start blogs.

In 2003 Google offered to purchase Pyra Labs, but only if it became clear that Blogger would be focused as a mainstream product, so once they joined Google, they dropped the subscription service. Ev knew that he would learn a lot at Google and be able to work with amazing people. He wanted to get the most out of that and also to get Blogger to a point where it would do well within the Google structure. Once both of those things were accomplished, he felt it was time to leave, as he wasn't attuned to working in such a big company. He actually stayed a year and eight months, longer than the year he had expected.

TWITTER

> I was anxious to do something next! I had some ideas, but my plan was just to take some time off. I actually stumbled into the next thing much sooner than I expected, because a friend of mine was working on it. I was advising and investing, and then found myself being the CEO. That was a company called Odeo, founded by Noah Glass. He had a service called Audio Blogger, which allowed people to post audio to their blogs. We had done a deal with them when I was running Blogger. And it was a neat little feature to let people call up a phone number from any phone and leave a voice mail that would be posted as an MP3 to their blog.
>
> This was before the idea of podcasting was known. In talking with Noah, Biz Stone, who is one of the cofounders of Twitter, and I stumbled on this idea. What if you would download these MP3s to your iPod and subscribe to things? Shortly thereafter we heard other people were having the same idea, as is often the case, and it got labeled *podcasting*. It seemed like an opportunity that was interesting.
>
> That was the idea. It was to be a podcasting company, which at the time meant too many things, but really in my mind it was about democratizing audio, mostly spoken-word audio, not music necessarily. There have been a lot of advances in music, but spoken-word audio was a medium that hadn't really seen the effects of the Internet yet. It was still very limited in terms of consumer choice and very difficult to put out there as a creator. I was always a fan of books on tape and lectures on tape, and it seemed like there was tons of material from conferences, or just things that people could create that had interesting aspects. People could listen to it during the thousands of hours a year they spend in the car. You can consume audio in times when you can't consume any other type of media, and yet it's really limited in how you get it, and how you pay for it, and how you create it and distribute it. That was the idea: to enable that.

They worked on the design for six months, running to get ahead of the competition as podcasting began to get a lot of hype, but there was nothing available with a simple and easy user experience. Just before they were ready to launch, Apple announced a solution that connected iPods and iTunes with podcasting software, putting the solution onto 10 million desktops overnight, so the podcasting idea had to be scrapped for Odeo. Another difficulty they encountered was the basic challenge of creating good audio.

> To create listenable audio I think actually takes more skill than creating a watchable video, but we didn't understand that at the time. I think it's a medium where there'll be a flatter tail. There's still an opportunity there. There's still stuff people will listen to, but it just had different dynamics than we were expecting. Why couldn't anyone be the next Ira

Glass? Everybody has stories. Millions of people have stories and people could go collect the stories, go tell the stories. It could be great.

I think the opportunity will be much more along the lines of a marketing and distribution-focused company than a content creator-focused company, which was more in our DNA, having come from blogging.

The first ideas for Twitter came from Jack Dorsey, an engineer at Odeo, who had been thinking about something similar for a number of years. He had come from the world of dispatch and courier software, which has the concept of "status," where the couriers report their status and messages are sent to them. Jack had the idea of creating a social status broadcast system a long time before. The Odeo team was toying with some new ideas in brainstorm mode, searching for something to focus on instead of the podcasting product, so Jack's concept became a side project, working with Biz Stone, who became a cofounder and creative director for Twitter. Ev was interested in bringing audio to people on the move.

I thought that audio podcasts needed to get to where they would be the most compelling form of media, but that's not in front of a computer. When you're out and about, when you're walking down the street or in your car, getting fresh content to the iPod is difficult, but getting it to the phone may be easier. For that reason we were looking into SMS, and Jack put two and two together and said SMS could be a transport mechanism for this idea of status, and we could tie the audio message into that. Then we said, "What if we throw the audio part out?" Then we'll have something that doesn't relate to Odeo at all, but it's kind of interesting. So Jack and Biz built a prototype, we started using it and found it instantly pretty compelling.

We were using it through our phones and text messages, keeping it very, very simple. It was novel. At the time I hadn't personally used text messages a lot, but I soon became a fan of SMS because it's elegant and instantaneous and mobile. To get these messages was just fun! It was that human

Tweets from the Cooper-Hewitt
screen capture

connection, fun, lightweight, the endorphin rush that drives a lot of the social activities on the Web and everywhere else, and it happened with this very simple mechanism.

SMS informed the design of everything about Twitter at the start, always combined with the Web, so you could log onto the Web site and see the status of each friend and turn SMS on or off. The messages on Twitter are limited to 140 characters, based on the 160 characters in SMS, with room for a user name of 15 characters, a colon, and a space. As SMS has a single field, it reads like a command line, but in more recent versions you can add other things on the Web, like a picture, title, or emoticon.

Jack Dorsey was a minimalist with a very pure vision, and his adherence to the constraints of SMS kept Twitter simple. The text-only limitation made it very easy to integrate into anything else, and the simplicity has

What are you doing?
photo by Keiyac/Creative Commons

helped to attract application developers, with people building all kinds of clients and services that work with Twitter.

> It also has allowed flexibility. Even though we framed Twitter around the question, "What are you doing?" people use it in all kinds of different ways. I think that's partially because it's like a blank canvas. It's a small canvas but that allows you to think up new, creative uses. Jack was the main driver of it philosophically. There are a lot of people here who feel very strongly about maintaining the elegance of Twitter and the simplicity. When there are obvious things to add, and our users want them, and we want them, then we come back to "How do we do that without making it more complicated?"
>
> One of the other important aspects of Twitter is that it's real-time. Our challenge is to get information to people faster than any other medium. It's not interesting to hear from a friend that they had lunch last week at a restaurant that you've been to, but in the moment it creates a sense of connection that isn't otherwise possible. We are always looking for other things that we can enable through this real-time aspect, as that's unique to Twitter.

Twitter partnered with Current TV *(see the interview with Joel Hyatt in chapter 4)*, the participatory news and information service, to report on the 2008 U.S. presidential election. When the debates were going on, everyone was gathered around their television set, with the real-time comments from Twitter included as part of the Current TV broadcast. Current took a slice of the content based on keywords and presented it along with the main TV feed from the debates. The partnership offered an information feed with two components, without forcing Twitter to make their own service more complicated.

> Some things are goofy, like we'll take all the Twitters that contain cuss words and put them up on a page and you can watch that, or lots of interesting visualizations, where people present the data in interesting ways. Twittervision plots tweets on a global Google map and shows them in real time. You can see all over the world what people are saying. Google used that during the election cycle Super Tuesday, where they took election-related tweets and plotted them on a map as they were coming in during the day, giving a unique view on what real people were saying about the election while it was happening all over the country.

By the beginning of 2008 it had become obvious that a search function would be advantageous to the main Twitter site. At that time the team only had nine engineers who were developing code, so Ev thought he would need to go outside to develop search. He started talking to some major Internet companies about the task, but a small company called Summize had built a search engine based on Twitter,

and it looked like they had done a great job. He ended up buying Summize and incorporating their engine into the product, while at the same time adding five engineers to his staff. Search allowed you to immediately see what people were saying about any topic under the sun. It might be a television show that you're watching, or a new product that just came out, or anything. It gave a view into the value of Twitter that wasn't otherwise obvious.

In 2009 Twitter concentrated on introducing the concept to a wider audience, and then guiding people through the experience. They also added capabilities, but they tried to do so without losing simplicity, so that the software would be context sensitive, recognizing the desire of the user as they enter text.

> People are starting to get now that there's a whole world within Twitter, but at first it seemed like the most ludicrous idea ever. It's like we'll take blogging, we'll take out all these features and we'll limit the size of the post and that will be a whole thing. It's just very nonintuitive. I'm really attracted to the idea that you can have something that seems really small but it actually is like a molecule that is everywhere. I think that speaks to the trend of infinite diversification that I see continuing forever. As many people have said, media never die, just new ones are born.
>
> Someone wrote me recently from *The Economist* and asked me to comment on the hypothesis that blogging is dead. You could see how they reached that conclusion by saying, "Well, things like Twitter and Facebook and these other applications are where people who would have been blogging are spending their time." I answer that in two ways. First of all, blogs are still growing themselves. They are becoming richer and entire media empires unto themselves. The other thing is that Facebook, Twitter, and blogging are really the same motivation. It's in a different package, but it's about people sharing things on a one-to-many basis and putting things out there. There's been a bunch of social media applications over the years that I think are just the same concept in different permutations and often just more focused rather than all one big thing.

Up to 2009 Twitter was focused on design and content development without worrying about the business side. Ev believes that the value in Twitter is going to be dictated by the size of the network and the ability of people to communicate, and that there will be many ways to generate revenue. There is already a lot of commercial activity happening on Twitter, so once the value is recognized, companies will be willing to pay for it.

> Whatever we do, we want it to add value to the product, as when Google had the insight, "Well, what if the ads were actually helping solve what the user is trying to do?" I think we have similar opportunities that we're excited about but we're not focusing on right now.
>
> Very few highly successful Web products have died because they haven't found a way to monetize. There were some during the first dot-com bust, but "popular" then was a fraction of what "popular" is today. The built-in economics of the Web are much better today. Now it's more about the strength of your business model, with Google at one end with the best business model ever and banner ads on their own at the other end being the worst business model ever. Even though we're making zero money today, there are ways that in a very short period of time we could make money. We just want to do it in a way that doesn't hurt the user experience at all and optimizes the business.

TWITTER OFFERS SOCIAL NETWORKING at a minimal scale, leveraging the real-time opportunities that come with the nimbleness of messages that are short and quickly created and received. For the final interview in this chapter, we talk with Mark Zuckerberg, the founder and CEO of Facebook, who has developed a richer form of social networking with a design approach that looks for empathy and openness.

MARK ZUCKERBERG

Interviewed November 20, 2009

Mark Zuckerberg
photos by author

MARK ZUCKERBERG

Mark was born in 1984, so he was only twenty-five at the time of this interview and twenty when he founded Facebook. At the end of 2009, Facebook had 350 million users and more than 1,000 employees, with headquarters in Palo Alto, California, and nine branches around the United States as well as seven international offices. Three rounds of venture capital amounting to $40 million had funded the company. In 2007 Facebook sold a 1.6 percent stake to Microsoft for $240 million, rejecting a competing offer from Google. This would indicate that Facebook had a market value of $15 billion at the time of the sale. All this growth and potential value amounts to an amazing achievement for someone so young. It may have only been possible because Mark was a prolific software designer from the age of ten and wrote programs to solve the problems that he encountered in high school and college. He founded Facebook while he was at Harvard studying psychology and computer science; he later moved the company to Palo Alto. He is both the founder and CEO, responsible for setting the overall direction and product strategy for the company. He leads the design of Facebook's services and development of its core technology and infrastructure.

The interview with Mark Zuckerberg was the last for this book, not because it was a late idea, but because it was so difficult to pin him down. At IDEO we know Facebook well, as their headquarters is close to ours and we connect socially. I tried to arrange a meeting without success for more than a year. Mark is notoriously shy of interviews, particularly with video recording, so it was no great surprise that when we arrived to set up the cameras, we were told that our one-hour slot was reduced to twenty minutes. He used that short time to communicate some interesting ideas. The light in the room where we were shooting was perfect for video, thanks to the high windows and north-facing skylights. The building (designed by Studio O+A) is open and full of light, with internal structures glowing in bright colors. As we were leaving after the interview, I thought to myself that I had seen a lot of people in the reception area and open spaces, none of whom were more than half my age!

← **Facebook's Social Graph**
image courtesy of author

THE JOY OF DESIGNING CODE

Mark got his first computer in fifth grade and within months was thinking about how to build things for it and customize it more. He reveled in developing games and new programs to solve the problems around him. At high school he was always writing programs, including one to help the workers in his father's office communicate and a version of Risk as a single-player game.

In his senior year Mark teamed up with a friend for a music project called Synapse. They built MP3 player software and an artificial intelligence system that learned listening habits and compared one listener to others in order to offer recommendations. Microsoft and AOL were both impressed enough with the design to offer to purchase the program and recruit Mark, but he decided to go to Harvard instead.

> When I was growing up, this was the thing I really loved doing. I'd go to school and class, and then come home and think, "I have five whole hours just to sit and play on my computer and write software." And then Friday afternoon would come along and it would be like, "OK, now I have two whole days to sit and write software. This is amazing!" To sit down and write software or design something is like sculpting: You sit down, you craft something, you build it, and then you're done. You walk away and you have something that you've built that you can share with other people.

This passion for designing software defines Mark's very existence, but he is interested in people as well as the structure of algorithms. He chose to study psychology and computer science at Harvard to learn more about what makes people tick. He was responsive to the environment that he found himself in, always looking for a new design opportunity to solve an information need or to provide a software-based service.

When Facebook came along, I wanted to have the ability to see what was going on with the people around me whom I cared about and stay connected with them. It's impossible to build an application that lets you do that unless other people are also using the application, so that was among the first set of things that I built that were for other people as well as myself.

When I was in college, I played with a lot of different ideas around seeing certain pieces of information that would reveal what was going on around you. One of the first was an application called Coursematch. I downloaded the Harvard course catalog. People could fill out what courses they were exploring during the shopping period before they chose which courses they were going to take. The interface allowed you to click on any course and see all of the people at Harvard who had also said that they were thinking about taking that course. It was the first graph application that I built. Showing the connections between people and the classes that they were taking has the same properties of a graph that Facebook and the Social Graph have now. I was playing with the data set, the Harvard course catalog. It was online for a little while during the shopping period and then my computer crashed and I had no backup of it, so I don't have anything like that any more.

During my sophomore year at school I built a lot of things like that. Another one allowed you to look through the archives of the *Harvard Crimson*, type in any two people's names, and see which articles they were connected through. These were just experiments with interesting types of software, but by the time that I got around to thinking about Facebook and making something that could give you a lot of context for the people who are around you, I had built a lot of the specific pieces already, whether it was the courses people were taking or the news articles that they were in, so I was able to put Facebook together very quickly, in a couple of weeks.

The speed with which the first version of Facebook was designed has entered the annals of software development lore, so it is interesting to hear Mark trying to gently explain it away as something that emerged naturally as an extension of his other programs. The first version was very simple, and it evolved slowly through an iterative process of development, responding to the needs and desires of the community of people who were participating in the experiment. Mark explains his own insights about the process:

I think that two elements make it work. There's got to be some kind of big-picture thing that you're moving toward in the future that reflects the ideology behind what you are doing—for example, that we think social networks should be platforms, that we think the world should be generally more open and transparent, and that people should be willing to share more stuff. There has also got to be a very tactical use case that drives what people, your users, are going to be doing on a day-to-day basis. Unless you have that use case yourself, you probably don't have enough empathy for what people who have that use case are feeling.

I was shopping for classes myself when I built Coursematch. I wanted to see what courses I should take. I designed a pretty simple application, as it was something I was able to build quickly, both in terms of figuring out what was important and in deciding the list of things that I could triage out and didn't have to worry about in order to design it in two days.

CONNECTING PEOPLE

This combination of long-term vision and pragmatic evolution is common to many examples of successful design development. Perhaps Mark is partly boy genius in that he was able to write such effective programs at such a young age, but the insight about combining vision with iterative development transcends time. The example of vision that he gives is based on the promise of connectivity offered by the growth of the Internet.

The world is on a trajectory to become more open. I have this picture of people in college in the 1960s or '70s spending a lot of time sitting around talking about civil rights and the big social issues of the decade. Similarly, I spent a lot of time talking to my friends who studied computer science, math,

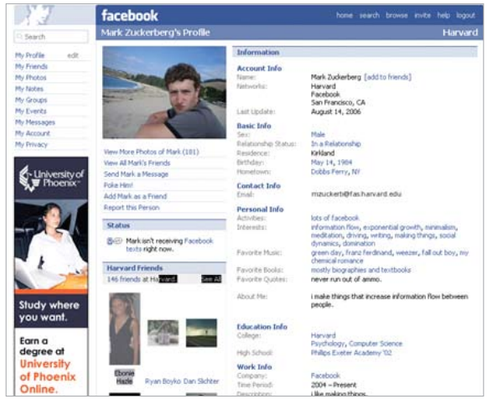
and psychology, and the things that we talked about were how the Internet was changing society so profoundly, because now there was so much more information available.

Going back to the time when the first browsers were available, it seemed like the amount of information that was available was increasing exponentially. You can plot out a trajectory that this will continue to happen into the future with technology that's imminently on the horizon. Almost everyone is going to have a mobile phone, and they are going to keep on getting better and better. There's going to be more access to information, and that's going to make it so that people have a better understanding of what's going on around them, and that's good, right? It makes people more efficient at what they do, more understanding, more tolerant.

In talking to my friends, it just seemed like this was it for our generation—that this was probably the most transformative thing that was going to happen. At the same time, none of this tied in with any of the applications we were building then. We just had this philosophy in the back of our minds, so it's not really a coincidence that Facebook is an application that pushes toward connecting people to each other and to information.

It is interesting to compare the vision and philosophy behind Facebook with that of Google. In the interview for *Designing Interactions* with Larry Page and Sergey Brin in 2002, well before there was talk about going public, they were talking about the ideology that lay behind their approach, with a mission to "organize the world's information and make it universally accessible and useful," while at the same time keeping their focus on search. This has provided the seed for a company culture that values the development of clever algorithms in the service of the people who use them. Mark compares the culture of Google with that of Facebook:

I think Google is a great company! Their founders have such good focus, very deep in the discipline of computer science, giving the company that academic type of feel to it. Facebook is a bit different. The background of a lot of the people here is more connected to the interface between

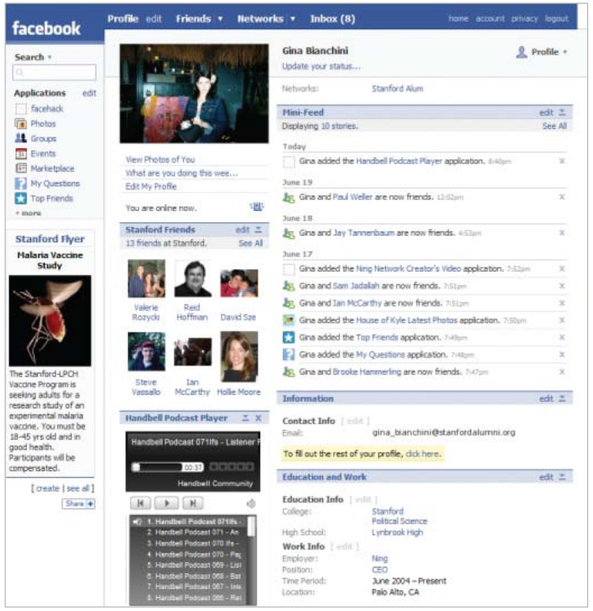


Screens of the original Facebook
images courtesy of Facebook

computing and society, and how the social norms of people relate to technology.

Google's focus seems to be primarily on algorithmically sorting what's there, whereas our focus has always been on making it so that people share more information and have the tools that they need to share the things that they want, and connect with the people that they want, and control their privacy in the way that they want.

Search is basically just indexing all the information that's out there and making it easily available to the public, but there is a huge amount of information that people don't want to share with everyone. If you give people a way to share some information with just their school community—or just their work community, or their family or their friends—then you actually enable a huge amount more sharing than they would otherwise want.



Facebook 2007 screen shots, profile and news feed
images courtesy of Facebook

DESIGNING FOR SHARING

Social networking should be designed to help people connect without feeling that a layer of technology stands in the way. The challenges are very similar to service design, where the human touch makes the solution sympathetic, but most of the enabling technology needs to be hidden from or transparent to the users. Mark strives to balance human qualities with successful algorithms, while always learning from an iterative process of trying out designs and then improving them in a new version.

> We've found that things that are very human do better. Just seeing someone's face makes a very big difference in how a product feels and thus how it performs. Our brains are made up of different parts that process different things. We have parts that process math that are more analytical, but there are whole parts of the brain that are just for processing people's faces and understanding really small gestures, like how people shape their eyes, and how they convey different emotions. Faces are very powerful to humans! That's an example of something that we've both realized empirically through seeing how people use the products but that also ties into our overall thinking and philosophy of design. There are other projects where the interface is relatively simple on the front end and most of the value is generated by optimizing an algorithm.

Facebook's news feed is a good example of the best of both the personal and the algorithmic design qualities. The activities of all your friends for the past eight hours are presented as a scroll, identified by faces and names, with plenty of photos and discussions. The design of the presentation is like a personalized newspaper that is updated in real time for every individual, with very human qualities. The goal is to know exactly who your friends are and what kind of content you care about and to offer it to you in real time. The challenge is to present the information very efficiently, grouping pieces of information together to give them context while picking the thirty items that you most want to see from all the thousands of possibilities. By offering this service, Facebook is competing with traditional local newspapers, but Mark thinks there are distinct differences.

> As people have a finite amount of time, if they're not looking at newspapers as much and they're spending more time on Facebook, then that's competing, but I think fundamentally we're doing pretty different things. They produce content; we don't. We are a social filter through which people can see what's going on and what the people around them care about. A big part of that is news, and we don't produce any of that content. The *New York Times* produces a lot of that. So I think we actually have the potential to generate a lot of traffic and help them out with a lot of what they are doing.
>
> I also think that the world moves pretty quickly, and that the state of these industries is probably always going to be somewhat in flux. I think that, going forward, these systems will just continue to evolve at a faster and faster rate, and you won't think about it as "this is the way it was" and "this is the way it is." It's just going to be in motion. Newspapers aren't

> going away. They do something that is extremely valuable. Will their relative importance compared to everything else that exists in the world change? Yes. That's because the world keeps shifting over time. Some years they'll be more important than they were the year before, and some years they'll be less important than they were the year before. The relative importance of these different media shifts around over time as the world evolves.

Mark spends a lot of time thinking about new connections, about how things are becoming more open. Everyone has personal information that he or she wants to share, given the right context and security protections, so connecting to friends helps people get information about the people who are most important to them. Facebook has been designed and developed based on Mark's belief that this information about friends is the most important asset that the Internet can offer. He thinks that people will share more, more information will be accessible, and the world will become more open. He expects that mobile platforms will grow the fastest, as people will want to have devices with them to share information in real time, all the time.

COMMENTARY

Jorge Just is still young, but he has already made a lot of new connections. He connected with fans of OK Go by writing them personal notes. He developed a Web site that connected with journalists and advertisers professionally and with fans intimately. He connected with YouTube before any other band, musician, or record label had.

The members of OK Go came up with music videos with intricate dances, connecting boy band moves and cheerleading routines, and gave out DVDs while on tour. The contest to imaginatively re-create the band's dancing turned viral, with the derivative videos popping up everywhere.

The idea for using treadmills in the "Here It Goes Again" video also proved to have an irresistibly viral quality. The fan base for OK Go was there and ready, and the open competition had become popular, so the moment they put the new video out, it floated to the top of the YouTube ratings. The band went from obscurity to worldwide fame with the help of an ingenious connection to a new medium, combined with inspired performances that engaged and charmed people by their unselfconscious vitality.

I find it encouraging that OK Go achieved this incredible viral success by focusing on simple values, combining their music and amusing dance routines, connected through the new medium of YouTube. Who *hasn't* seen the treadmill video? The connections enabled by YouTube are amazingly powerful, but this story reminds us to stick to simple and strong emotional values for artistic content rather than going for slickness and hype.

Chad Hurley, the only designer at PayPal, learned about designing for the Web by direct experience, and he benefited financially when eBay acquired PayPal in 2002. He became part of an entrepreneurial development

community and started out by designing something for himself and his friends. They noticed that Flickr was having success in connecting people through shared photos and saw a similar opportunity for video. Inexpensive video cameras and editing software were already available, but it was difficult to share video online because of varying formats, large file sizes, lack of standardized media players, and limited bandwidths. They thought this might be a huge opportunity to make new connections.

At first they tried to define a set of standards to allow an easy video file sharing experience based on a single type of content, but they soon realized that they would do better to create an open platform and avoid being defined by one specific type of video or site. They solved the file type challenge by reencoding everything into Flash; they built an underlying architecture that would scale at a reasonable cost; and they made the video portable so that anyone could embed a link to a YouTube video in HTML and put it on their own Web site or blog.

By 2004 the costs of bandwidth were plunging, so Chad was able to start with inexpensive hosting services, but he and his team started to build their own architecture to serve the data themselves, as they were determined to create a neutral platform. This decision continues to create engineering challenges, as traffic is increasing all the time.

Chad was careful to create a sympathetic design for the YouTube Web site, avoiding anything that was overproduced, slick, or corporate-looking. He used basic HTML code and a simple design because he wanted the brand to be playful but also trustworthy. As with the treadmill video from OK Go, there is a complete lack of self-consciousness in the design and presentation of the YouTube site. Chad succeeded in facilitating connections by carefully designing for simple functionality and presenting YouTube in a form that appears friendly and familiar.

Site navigation has emerged as a difficult challenge. The design tries to harness the power of the masses to curate the site and prioritize viewing, with the popularity of pages as a mechanism to bring items to the surface. This approach needs to be combined with the ability to search to find narrowcast content, so Chad and his team are continuously trying to improve their search functions. Users can search titles, keywords, or any of the metadata associated with the video, but they hope to discover more powerful solutions to unlock the entire tail of content, beyond the analysis of views and ratings.

From the start, YouTube planned a business model that relies on advertising revenue, which only becomes successful when a tipping point of scale is reached. This point came quickly for YouTube, as they established a leading position almost immediately, and the Google purchase for $1.65 billion secured their dominance.

Chad is making progress with the complicated problems of intellectual property for both video and music. As each video is uploaded, it is run through a content-identification system for music, allowing royalties to be paid where appropriate or for removal of the video if necessary. Revenues are also generated for independent video makers, through a partner program for ad placement.

Chad sees all of the different forms of moving-image media converging, and he foresees a future with people accessing video from the cloud, scaled for delivery to any device, and paid for by some rules around usage—perhaps a per-play rate, a service subscription, or advertising. I find this prediction convincing.

Alexandra Juhasz teaches media studies and is interested in the political and artistic uses of media. As a scholar and activist, she is instinctively repelled by the YouTube experience, believing that the communal building of knowledge can't happen in that medium and that the idea that the site is democratic is untrue.

Her analysis indicates that YouTube is organized by popularity, keeping what she calls "NicheTube" almost invisible, and she sees popularity as a limited and even juvenile way to organize life. She thinks that the design is structured to cause people to connect as quickly and unpredictably as possible from one thing to another, in order to maximize exposure to ads. She sees this as a viable business model but not a viable way to support democracy, culture, art, or community.

Alexandra also points out that although we've been raised in a culture surrounded by images, most of us are not fluent image makers. We are better equipped as writers because of the literate nature of our education, so the sudden access to the tools to make video has not been paired with access to education about media production. She sees a need for teachers and educators to raise the level of video creation skills, so that most people can become competent participants rather than just consumers.

Online video is expanding exponentially, fueled by inexpensive video cameras and video editing software combined with the arrival of adequate bandwidth for viewing on personal computers and handhelds. This means that video content of all types is becoming available online as well as in traditional media, so the door is open for new connections. Entrepreneurial offerings are springing up for a host of specialist applications that complement the dominant YouTube. Hulu delivers TV shows and movies. Vimeo allows people to publish videos for public consumption or just for friends and family. Apple is educating consumers on the benefits of watching video through iTunes Movie Rentals on iPhones, iPods, iPads, and Apple TV devices, and companies like Netflix have pioneered the movement from physical DVD rentals to downloading streamed versions on demand.

There are also opportunities for subscription services, offering business-to-business solutions for integrating video onto Web sites. An early innovator in this space is Brightcove, founded by Jeremy Allaire and Bob Mason. The service allows video content owners to publish, distribute and deliver video to their audiences. Bob is focused on making the system as simple as possible, so video can be encoded, uploaded, launched, and presented in a branded player on a Web site in less than thirty minutes. Much of the Brightcove offering is transparent to the end user, with the connections automatically adjusted by the software.

Bob predicts that coming bandwidth improvements will allow fluid connections of online video across platforms, with PC, mobile, and TV experiences accessing common source material. He expects there to be much more material being created for business purposes, so that content will be produced by companies that you would not think of as media or video companies.

Jeremy Merle leads the team of user interface designers at Brightcove. His first priority is to understand the people who will use the product. The research that his team conducted revealed three main stakeholders—media producers, design integrators, and business developers—and he has developed separate modules to satisfy each of these.

Ev Williams is a serial entrepreneur. After starting a family business to develop CD-ROMs in Nebraska during the early years of the Internet boom, he headed for California in search of opportunities. He cofounded Pyra Labs to develop Web-based collaboration tools for project and task management, with ideas about connecting email to tasks and making events and messages task-related.

Weblogs were being talked about in 1999, and Ev wrote a script to let him publish messages to his personal Web site. He found that it really changed the dynamic of having a personal site. Soon Blogger emerged as a brand name for the tool that he was developing. In 2003 Google offered to purchase Pyra Labs on the condition that Blogger would be focused as a mainstream product, so Ev spent the next twenty months at Google making that happen.

After Google, Ev was invited to run a company called Odeo. For six months they worked on a podcasting idea, but Apple beat them to the punch, and they needed something else to focus their attention on. The first ideas for Twitter came from Jack Dorsey, an engineer at Odeo. He had the idea of creating a social-status broadcast system. The Odeo team toyed with some new ideas and decided to build a prototype using SMS as a transport mechanism for real-time connections. They found their prototype surprisingly engaging—another example of an innovative design idea emerging from a group of creative people prototyping solutions for themselves! The Odeo team were rigorous about simplicity, so whenever a new feature was requested for Twitter they would only add it if it was possible to avoid complex interactions.

Ev has been surprised by the growth of Twitter and tweets—initially it struck him as odd to reduce the capability of blogging so drastically, but it seems that the very simple structure has been a remarkable asset. Ev sees Facebook, Twitter, and Blogger as all being about making connections on a one-to-many basis.

Mark Zuckerberg seems camera shy in the formal situation of a video interview, but I got the sense that an endless conversation with him in a relaxed environment would be very rewarding. Here is a summary of some of the points that interest me, taken from Wikipedia and other sources.

Mark invented Facemash in 2003 while attending Harvard as a sophomore. He hacked into the protected areas of Harvard's computer network and copied the ID images of the students, placing two next to each other at a time and asking users to choose the "hotter" person. He wrote in his personal blog, "Perhaps Harvard will squelch it [Facemash] for legal reasons without realizing its value as a venture that could possibly be expanded to other schools (maybe even ones with good-looking people …), but one thing is certain, and it's that I'm a jerk for making this site. Oh well. Someone had to do it eventually." The site was quickly forwarded to several campus-group list servers but was shut down a few days later by

the Harvard administration. Mark was charged by the administration with breach of security and violating copyrights and individual privacy. He faced expulsion, but ultimately the charges were dropped.

In January 2004 Mark began writing code for a new Web site and launched "Thefacebook" in February. He told the *Harvard Crimson*, "Everyone's been talking a lot about a universal face book within Harvard. I think it's kind of silly that it would take the University a couple of years to get around to it. I can do it better than they can, and I can do it in a week." When Mark finished the site, the uptake was swift, and it spread to other universities. He incorporated the company in the summer and moved the headquarters to California.

I find it prescient that both the strength and the dilemmas of Facebook were already visible during these first experiments. People were fascinated by the chance to see themselves compared and connected to others online, with an interface that was more visual and welcoming than email or texting, but Mark's desire to open everything up was getting him in trouble right from the start, posing a dilemma that is still difficult and contentious to solve.

Mark emphasizes his interest in psychology as well as his passion for algorithms, revealing a strong philosophy that complements his pragmatic design approach. I particularly enjoyed his enthusiasm for the creative delights of writing code: "You craft something, you build it … and you have something … that you can share with other people."

Behind this pleasure in his craft is a combination of long-term vision and pragmatic evolution, attributes that you find in many examples of successful design development. He describes two necessary elements: First, a kind of big-picture thing that reflects the ideology behind what you are doing—for example, that the world should be generally more open and transparent. Second, a tactical use case that drives what people do on a day-to-day basis. He believes that the world is on a trajectory to become more open, that there will be more access to information, leading to a better understanding for people about of what is happening in the world. Mark is profoundly optimistic and believes that this openness will make people more efficient at what they do, more understanding, more tolerant. Let's hope he's right!

The opportunities for creating online communities have been slow to develop, but Facebook and other social-networking services show what is possible. Facebook is an application that pushes toward connecting people to one another and to information. The human-to-human connections in social networking are very personal and need to be designed to help people connect without an obtrusive technological interface. As Mark says, "Our focus has always been on making it so that people share more information and have the tools that they need to share the things that they want, and connect with the people that they want, and control their privacy in the way that they want. … We've found that things that are very human do better. Just seeing someone's face makes a very big difference in how a product feels and thus how it performs."

Mark is pushing Facebook to develop designs with a deep awareness of human perceptions as one of the elements to be synthesized in creating a solution. He wants the site to offer a social filter through which people can see what's going on and what the people around them care about. This mandate, to help people see more and be better connected, is difficult to balance with the desire for privacy. Social-networking sites like Facebook will probably always suffer from the implications of this paradox.

When it comes to the business success of Facebook and the value of the enterprise, the jury is still out, but the rumors and offers already received indicate a valuation that is counted in billions of dollars. So far, Mark has been careful to resist temptations to be purchased or to go public, but I wouldn't be surprised if that changes by the time you read this.

CHAPTER 4, "BOTH WORLDS," provides some examples of new connections linking to old ones, with combinations between traditional media and new media that enhance the output of both, even if they challenge the financial structures of the past. The first interview is with Joel Hyatt, cofounder and CEO of Current TV. During the 2008 U.S. presidential election, Current TV made a new connection to Twitter, using old-world broadcast television coverage combined with new-world Twitter participation in real time.