

Trend Four: The (xTreme) BYOD WearWare Movement

The next leg of the journey compels our hero to look very closely at her own life, and to take stock of all of the gadgetry that she has unconsciously incorporated into her daily routine. She lives a BYOD life, as we all do, in that she “brings her own devices” with her wherever she goes. She has to in order to maintain a continuous connection between RL and IR.

All My Stuff. A pile forms in her mind of all the iStuff she can't imagine living without, like her Wi-Fi-enabled iWatch and her FitBit fitness bracelet. Of course, the center of her BYOD universe is her smart phone, which is awash in apps she continually turns to without realizing she's doing so. She uses a number of social media every day to stay in touch with extended family members who are spread across the globe, and who will worry if a birthday passes without receiving one of her famous Happy Birthday singing eGrams. On her subway ride to work this morning she used an app to translate a business negotiation into proper Spanish; she used another to find potential hiking partners among the strangers who were sharing her subway car. All this happened before 8 AM. She wears her electronic enhancements like a suit of designer armor. When she considers trying to live without them, the thought makes her feel powerless...and naked.

Yet she knows that people used to get along just fine without all of this stuff. She has fond memories of listening to her grandmother talk about growing up happy during difficult times even though she possessed little more than her imagination and very few of life's basic amenities. She remembers her grandmother regaling her with tales of living without a TV or a telephone, and about gathering around the family radio to listen to some of the first broadcasts coming from some of the very first radio stations that ever filled the ether with music, news and DJ chatter. Her family's first radio was so heavy that two men were needed to lift it out of the

horse drawn cart.

Yet, her grandmother did own a pocket watch that she carried with her at all times. It was her lifeline to a synchronized society, as well as to memories of her doting parents who gave it her as a high school graduation gift. We have always lived in a BYOD culture that reflects our times. Our distant ancestors carried flint and knives. Our hero's grandmother carried a pocket watch. Our hero carries the accoutrements of electronic accessibility and amplification that are considered normal in her day. Our BYOD culture will only intensify as our culture of innovation evolves.

BYOD Comes to K-12. This is particularly true in education, where BYOD refers to a movement that reverses decades of K-12 educational technology policy. Until recently, schools have assumed it was their job to provide technology for students. Now schools are beginning to expect students to bring their own technology to campus, the way my generation was expected to bring pencil and spiral notebooks to class each day. To understand BYOD's origins, let me provide a bit of history.

During the 1990s my fellow educational technology enthusiasts and I convinced school districts to buy desktop computers to "prepare students for the future." That first wave of computers looked like small army tanks with hulking, fuzzy CRT screens. Keyboards sounded like jackhammers and storage capacity was anemic. However, those early machines held so much promise for education that districts decided to purchase them using 10-year bonds. Unfortunately, the machines were obsolete five years later. In my defense, I warned school boards that this might happen, but was told that five-year bonds didn't yield enough return to attract the investment community. To make matters worse, not long after the first round of computers passed into obsolescence, I had to tell districts, "Sorry about that, but now you have to get laptops," which was followed a few years later with, "And iPads." Some districts simply started

hollering, “Uncle! We give up! Students can bring their own stuff, and we will get out of the hardware business!” The worlds of business and higher education were already headed in that direction. Following their lead seemed like the only feasible course of action to take.

BYOD may have begun for financial reasons, but the inspiration that pushed it forward was the desire to personalize our electronic workspace to reflect our unique approaches to problem solving and productivity. If we were to look at all of our computers and devices, we would see that each of us has set up our workspaces very differently. You may have found a really cool piece of software I have never heard of. You most certainly have organized your desktop in a particular way that is unique to you. No two people’s bookmarks are the same. Most importantly, we have set up our workspaces so that they can travel with us seamlessly, wherever we go, in ways that reflect our particular approach to living a digital lifestyle. Our children just want to be like us in this regard. Mass customization is the philosophical basis for BYOD, and the prime mover that disrupted a conformist culture that emerged in the post-modern era. In practical terms, this means that everyone comes to work or school with his own device that uses personalized apps running in a customized workspace. IT folks are in the throes of adjusting to this foundational change. When everyone used the same software installation running on the same computer platform life was predictable, even fixable. Not anymore.

On the user end, we are adjusting to becoming our own tech support, with the help of YouTube, chat rooms and our kids. Ultimately, we will put up with the tech issues of BYOD because we like the flexibility that it offers. We particularly like the lifestyle that BYOD facilitates by making it possible to manage our participation in all of the communities in which we are involved. The net result is that using our devices saves time...or simply allows us to do more, and thus overloads life,

depending on your perspective.

Future xTreme BYOD. Where are we headed? I found a shirt online that offered a \$20 option to become a WI-FI hotspot, allowing me to connect to the Internet through my clothes. It has been quite handy during our journey. Our hero confesses she may buy a hoodie she saw recently that would allow her to interact on Facebook through the use of body movements. She is also interested in an emotion vest she saw advertised that connects her to the eBooks she reads, so that she can feel what book characters feel. I must admit that the God Helmet looks tempting. Then there's the kissing bot. Let's not go there. All of these may seem extreme today. But tomorrow they will be invisible.

I have no idea how commercially successful any of these devices have been. But I do know that The Quantified Self (QS) movement is dedicated to helping its many thousands of members use specialized BYOD feedback devices to track and analyze health and wellness related data in order to modify their behaviors to improve their quality of life. They can collect data on a number of daily activities, including caloric intake (eating) and output (exercise); blood pressure and blood sugar; and sleep and air quality. Industry analysts predict that the fitness tracker market will be worth more than \$50 billion by 2018, up from less than a billion in 2014, an increase of over 5000%.

The QS movement is a just a warm-up act for companies like dangerousthings.com, which sell biological enhancement hardware that turn us into "meta humans" by digitally and mechanically augmenting our eyesight, hearing and other capabilities. We can also buy tiny, implantable RFID (Radio Frequency Identification) chips that can connect our bodies wirelessly to our second, immersive reality. RFID is basically the same technology that is already used to track packages and pets, and activate security and recognition systems. Imagine

passing your hand over an ATM to get cash; or walking within ten feet of your car in order to unlock the driver side door; or collecting information about yourself that would allow you to objectively assess your lifestyle to help you improve your diet and exercise habits. In a few short years, our world of BYOD has embraced wearware and “implantware.” Indeed, the world of BYOD, which conjures up images of people running around with phones and laptops, is already beginning to look “floppy disk” quaint.

Companies who stand to gain from our boost in productivity may offer us incentives to “chip ourselves.” Governmental agencies may promise to process our retirement payments more quickly if we agree to chip implantation. In many regards, RFID simply offers more advanced, invisible ways to perform a number of functions we already perform with our smart phones. Adopting RFID may actually end up being a very small step to take. It is important to remember that we don’t need to be physically near something, like a credit card reader or a car, in order to activate a system. We just need to be near a WI-FI connection, which allows us to be virtually present anywhere, regardless of where we are in RL. RFID implantation will bring us one big step closer to ubiquity.

The future may be uncertain but our BYOD technological trajectory is clear. We will hack ourselves to “improve” ourselves, not only due to a sense of curiosity and artistry, but also due to our fear of not keeping up with our competitors, all of whom will have enhanced themselves in some way. In retrospect, companies like dangerousthings.com will be seen as the first affordable step toward Kurzweil’s “singularity,” a theory that projects that humans and technology will merge so seamlessly that they will become indistinguishable. At that point there will be no way for us to turn off our technology, any more than we can currently turn off a natural, biological limb.

By the way, we should expect new kinds of gatherings that

I call “hacking parties,” where people share access to each other’s sensory information through their bio-enhanced bodies. Imagine truly seeing the world through someone else’s eyes and you get the idea. Bear in mind that anything that can be hacked can be hijacked. We already tap into cell phone calls and computer email; extending those capabilities to bionic eyes or RFID implants is conceptually and technologically easy to do. Anyone who can tap into our data streams can know not only where we are and what we are doing, but also what we are seeing and hearing. One day they will know what we are thinking and feeling. Who will use this information? As the narrator says in *Dark Net: Upgrade*, “Every bit of information about you is worth something to someone.”

Perhaps most disrupting about xTreme BYOD is that much of it will be, in the words of technology guru Shelly Palmer, inconspicuous innovation. It will blend into our wardrobes and our bodies so invisibly that it will be undetectable during normal encounters. Will it become commonplace to scan one another before beginning a conversation, using another BYOD technology developed to detect the presence of inconspicuous technology? I assume so. We just can’t be too careful these days.

While I am on the topic of how we can protect ourselves in a surveillance society, allow me to offer some advice. Suppose you are at dinner with someone who leans forward and whispers, “So, what do you really think of your boss?” I suggest you hesitate before responding. Perhaps you are being recorded or even broadcast through his glasses or contact lenses or the GoPro woven into his shirt fabric. Actually, it might be best to prevaricate. Lie, in other words. The optical recognition technology that makes much of AR possible, and which will most certainly become a standard part of our xTreme BYOD wardrobes, will become less obvious with each iteration. Eventually it will become so inconspicuous that we won’t even know it’s there. Some taverns have outlawed wearable

recording technology in order to create a less inhibiting space for customers. The Motion Picture Association of America and the National Association of Theatre Owners prohibit recording by moviegoers and "...maintain a zero-tolerance policy toward using any recording device while movies are being shown." This works for the original Google Glass, which was quite obvious and a bit goofy looking. But how about future iterations of iGlasses, which may actually be contact lenses, or built into our clothes? In these circumstances such policies become unenforceable.

We're back to the math hat. Talk about xTreme BYOD! Are you going to buy it for your kids? You definitely are if all the other kids have math hats. What kind of parent would you be if you deprived your own child of the technology she needed to succeed? To make this decision easier for you, you will receive the math hat for free. It will be redesigned by Apple's Jonathan Ive and look very cool. However, there is a catch: The math hat is going to stream the data that passes through it to Google and Nielsen, who may in turn sell it to math curriculum developers, all of whom promise to make sure your children's data remains anonymous. You may be surprised to find that you actually want developers to track your kids' academic activities so they can build customized learning modules just for them. You may be quite anxious to pay the \$49.95 per month they require for such a service. So, now do you want a math hat?

BYOD and Market Research. There is no doubt that the future of consumer and education marketing research will use mobile, wearable BYOD. That's because current research methodology suffers from the Heisenberg effect: The process of observing something actually changes whatever you are observing. Researchers bring test subjects (they are no longer consumers) into a lab, wire them up, and then tell them to act naturally as they are shown pictures of smart phones, soft drinks and political brands. Reality? Gone. What do we expect?

Those seeking the truth in these kinds of situations need to get as close to the anthropological reality as possible. That is, they need to observe people in the process of being their unfiltered selves. Researchers want the “Candid Camera” reality. Our new, invisible video recording technology will make this possible, but with a twist. Instead of researchers recording subjects, customers will be the videographers, recording the world as they see it from their point of view. In this scenario, everything is recorded as they go about their business, and relayed wirelessly to the research office. Researchers parse the visual data and present it in terms like: “Eyes lingered on the Sumatra blend; picked it up, smelled it, put it back. Picked up the French Roast, smelled it, checked the price, put it back. Opened up the Columbia Supreme; smelled it several times. Didn’t check the price. Put it in his grocery basket.” Data like this is the holy grail for product developers because it represents not what we say we want, or how we respond to stimuli in fabricated research environments. Instead, it depicts how we actually behave. We have moved into a recording society, in which we can secretly record anything. I call this particular expression of recording “GoPro” Anthropology. The process of collecting the data further embeds all of us in a surveillance society, in which we never really know who is recording whom, and who will see the data. Do we really want to know all of this about ourselves? Perhaps we don’t. But *they* do.

Is the future of learning research the same as the future of consumer research? We certainly will have the tech to make it so. Imagine students wearing “record everything” gear, going about their school day, showing where they succeed and where they stumble; where they linger and where they move ahead quickly; where they enjoy the experience and where they don’t. Software will synthesize the highlights of the experience and produce a customized “learner facilitation report.” Imagine a video readout like: “Student struggled with the quadratic

equation for several minutes, fidgeting, tapping his pencil, and then clicked on the video option. After watching the movie, student moved quickly to the solution.” Customized learning approaches would flow naturally from a synthesis like this. The use of these approaches could also change our current obsession with standardized testing. Instead of taking tests, students would just go about their business. Their activities would be deconstructed and analyzed for progress. They might never have to use a #2 pencil - or its digital equivalent - again. The doing would become the test.

I have already addressed a number of the connections and disconnections of xTreme BYOD. Now let’s talk about how it can change education. To do so, I want to return to a question I asked in an earlier presentation: Do we want our students to live two lives or one? xTreme BYOD will compel us to address this question in very real ways. Currently, many students live two lives, a digital life outside school, and a non-digital life at school. However, those two lives will have to merge when invisible, smart, BYOD technology permeates our culture. At issue is how proactive we want to be about this development. In the future we will be judged by how well we helped our students blend their two lives into one inspired, safe, responsible approach to being human. But in order to help them, we must find ways to have them turn their devices on while at school. The flip side is that we also need to create a culture in which we also want to turn our devices off. As we charge into the BYOD world, let’s create a balanced environment by branding BYOD “on/off.” That is, let’s find times to turn our machines on, and times to shut them down. Let’s engage our students in conversations that don’t require media. The art of direct conversation is an important pedagogy and a dying art. We need to keep it alive.

How does xTreme BYOD help our data overwhelmed hero? By providing her a highly personalized way to navigate Big

Data. She can do so on her own terms, using her own gear, which she chose and customized, which conforms to the kinds of sensory experiences and levels of involvement that she wants. All the other caveats about the unintended consequences of technology apply. However, for now she has decided that if she is going to keep her head above water in an ocean of data, then she wants to use a floatie she has chosen, rather than one that someone else has given her. She continues her journey. But she is getting a bit tired.

Trend Five: Transmedia Storytelling

Our hero is already wondering how she is going to explain everything she has learned on her journey to others. She knows that a report or a stock PowerPoint presentation would never capture her experience. She has to tell a story. These days that probably means telling a “transmedia story.”

What Is Transmedia? Given I’m addressing the nature of story in another presentation, here I will focus on the nature of transmedia. The term “transmedia” literally means “across media.” However, in the world of modern media it is typically used to mean “across media channels and platforms.” Transmedia describes a world in which media developers use every kind of medium and media channel available through the panoply of modern media expression to construct media that entertains, educates, inspires and promotes.

In their discussions of transmedia, media scholars often focus on the TV show *Heroes*. How many people used to watch it regularly but don’t want to admit it in public? I see, all of you. How many are giddy with excitement about its return as *Heroes Reborn*? Same group. The show’s creator, Tim Kring, said his strategy for developing and distributing content was to use every media channel available to him: television, social media, games, whatever was there. He called his approach, “using the whole buffalo.” He involved RL, too. He would introduce a