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# Technology as a Form of Language: The Folklore of Electronic Man

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## Knowing Your Grammar

In his classic book, *Understanding Media*, Marshall McLuhan speaks of media (and he understands media as any sort of technological form) as being “extensions of man” which by their introduction modify the rhythm and scale of human affairs and relationships. That is, they structure and re-structure our social lives by us using them.

This runs contrary to the more familiar notion of technologies and media as mere tools, vessels of our will. According to the traditional account and understanding the role of media and technology in our lives, these represent an equally interchangeable array of tools with which we can exteriorize the content of our minds. The only thing that changes, according to this account, is the reach of my ideas: speech has a limited, immediate reach, whereas writing, on the other hand, can take those same ideas much further. Print increases the capacity of writing by making it scale, and therefore that same idea-content can reach more people, further away, quicker. It’s a linear understanding of technological development: new technologies allow us to do the same things and think the same ideas, but do so, as Daft Punk would have it, harder, better, faster and stronger.

McLuhan thinks this is nonsense, an understanding typical of someone understanding things from the vantage point of the industrial age and its mechanical processes. At the core of this misunderstanding is the fundamental divorce between form and content, going all the way back to Socratic times and Plato himself, with all credit being given to content while form was secondary and misleading. This is, of course, an oversimplification, but the main point remained for over two thousand years, picked up again over and over: appearances are misleading, and our senses can sometimes trick us (as Descartes would have it), so the form, the container within which ideas travel must not be given attention, as it can only, at best, provide incomplete information, and at worse, outright error. Truth, on the other hand, was hidden beneath, and we should look for ways to get at it.

In other words, we are to look beyond media for truth, which hides somewhere beyond. It is also, conversely, true that media are effectively interchangeable, as what matters lies beneath.

McLuhan’s response is that by paying no attention to the importance of form, we’ve made ourselves blind to the effects media have in our lives. We wanted so hard for it not to matter, that we turned a blind eye on it. But McLuhan’s point is precisely that no matter how badly we want it, we cannot make ourselves immune to the effects of technology on ourselves (at least not by wanting it badly). Even more so, turning a blind eye on these effects is a dangerous proposition, as it only pushes to the background a series of intense and complex transformations of our cultures and societies upon which we get to have no say. His reaction is then

to push for a deeper look into the effects of media, by saying that, effectively, it is the medium that is the message: this is not to say that content is irrelevant (though that is sometimes ambiguous with McLuhan), but rather that if we want to understand how various forms of media have shaped culture, we must look at media itself, not at its contents.

Media become, in this way, “extensions of man” not by allowing running faster or jumping higher, but because they enable people to do new things, things they couldn’t do before. They open up possibilities for the mind. But there’s a downside to it: because these extensions are, at the same time, amputations: just as they open up a new doors for human action, they also close others, by making them inaccessible, uninteresting or just plain obsolete. This trade-off does not happen immediately, peacefully or even wilfully. It happens over time, and through a process ripe with conflict and resistance.

McLuhan wants us to be able to turn our attention to the medium, and to look for the message that is the medium; that is, the way in which media restructure society and culture. Because if we can start finding these patterns, we can see this happening all around us, and once we can figure that out, we can maybe actually have a say in the process. For McLuhan, our current crossroads (and this was the 60s) is similar to that of the medieval monks in early Modern times: when confronted to the changes ushered in by the fancy new technology of print, monks and, in general, the Catholic Church decided to oppose it by ignoring it. And, culturally speaking, the printing press wiped them out. (For a while, Luther’s understanding of the effects of print actually helped him gain considerable ground on the Vatican. Once his initial objectives were accomplished, however, he chose to resist it just as much.) If, in a similar fashion, we don’t want our culture to be simply wiped out by incoming technological change ushered in by electronics, then we are to have a better understanding of how technological change happens.

## **Instruction Manuals**

What is it about media (or technology – by now, they are quite interchangeable) that we need to pay attention to?

In her study of recording and archiving technologies throughout the 19<sup>th</sup> and 20<sup>th</sup> centuries, Lisa Gitelman presented a very clear and useful distinction of two layers upon which we can understand media operating:

I define media as socially realized structures of communication, where structures include both technological forms and their associated protocols, and where communication is a cultural practice, a ritualized collaboration of different people on the same mental map, sharing or engaged with popular ontologies of representation. As such, media are unique and complicated historical subjects. Their histories must be social and cultural, not the stories of how one technology leads to another, or of isolated geniuses working their magic on the world. (...)

Defining media this way admittedly keeps things muddy. If media include what I am calling protocols, they include a vast clutter of normative rules and default conditions, which gather and adhere like a nebulous array around a technological nucleus. Protocols express a huge variety of social, economic, and material relationships. So telephony in-

cludes the salutation “Hello?” (for English speakers, at least), the monthly billing cycle, and the wires and cables that materially connect our phones. E-mail includes all of the elaborately layered technical protocols and interconnected service providers that constitute the Internet, but it also includes both the QWERTY keyboards on which e-mail gets “typed” and the shared sense people have of what the e-mail genre is. (...) Some protocols get imposed, by bodies like the National Institute of Standards and Technology or the International Organization for Standardization. Other protocols get effectively imposed, by corporate giants like Microsoft, because of the market share they enjoy. But there are many others that emerge at the grassroots level. Some seem to arrive *sui generis*, discrete and fully formed, while many, like digital genres, video rentals, and computer keyboards, emerge as complicated engagements among different media. And protocols are far from static. Although they possess extraordinary inertia, norms and standards can and do change, because they are expressive of changeable social, economic, and material relationships. (Gitelman, 2008, pp. 7-8)

This admittedly lengthy quotation is illustrative of several important McLuhanian themes. Gitelman’s notion of the social protocols that get weaved around specific media helps ground what McLuhan is speaking about when saying that “the medium is the message”: if there’s anything specific to that message, it is, precisely, these social protocols in all their complexity. Gitelman is quite accurate in identifying these as complex networks involving several different actors and interests, none of which can fully absorb or appropriate the actual configuring of the protocol: if any one actor could, then there’d be no such thing as illegal filesharing or social networks being used to drive political unrest. These protocols can be influenced, and can be moved around, but there’s very limited space for direct action in determining them.

Learning to use and cope with specific media therefore becomes a matter of being able to assimilate these protocols successfully, which includes things like knowing when to use and when not to use specific media. It’s fine to send a birthday party invitation over Facebook, but you’d probably not do the same for a wedding invitation. It’s OK to break up with someone in person, but you might want to think twice about doing it over an SMS message, or by changing your “relationship status” on Facebook without prior notice. The way these and other social transactions and their relationship to various media are regulated is through the interactions and understanding of the social protocols involved.

In *Understanding Media*, McLuhan mentions in passing a similar concept that is, however, much less developed than Gitelman’s exploration. McLuhan explains this understanding of specific media in terms of being able to grasp its “grammar”:

Cardinal Newman said of Napoleon, “He understood the grammar of gunpowder.” Napoleon had paid some attention to other media as well, especially the semaphore telegraph that gave him a great advantage over his enemies. He is on record for saying that “Three hostile newspapers are more to be feared than a thousand bayonets.”

Alexis de Tocqueville was the first to master the grammar of print and typography. He was thus able to read off the message of coming change in France and America as if he were reading aloud from a text that had been handed to him. In fact, the nineteenth century in France and America was just such an open book to de Tocqueville because he had learned the grammar of print. So he, also, knew when that grammar did not apply. (McLuhan, 2002, p. 14)

Other than this, McLuhan's notion of the "grammar" of technology is left for the reader to infer, and we can follow Gitelman's path to find a very reasonable interpretation of where it could've led (without subtracting any originality to Gitelman's account, of course). It does point in a very interesting direction for illustrating the process of coping with technology, and of incorporating it into our daily lives: media forms and technologies can be said to come to us by more than one instruction manual. One of these instruction manuals is explicit, and it indicates the specific literal ways in which the object is to be used – that it responds to certain electrical conditions, that it should or shouldn't be used in such or such way, and what to do if things fall outside expected operation, just to name a few examples. The other instruction manual is not printed anywhere, cannot be found on the manufacturer website and cannot be disregarded so easily either: the social grammar regulating how and when the object should be used, and how and when it shouldn't. These social norms governing the use of specific forms of technology are not obvious, and do not necessarily hold a direct relationship to its function or perceived benefits, but are instead the way in which the object is mapped back into the social continuum, and how it fits in with other objects, technologies and protocols.

Along the same line, acquiring competence, or even mastery, over the use of a specific medium, involves understanding and being able to comfortably navigate the social protocols woven around it, understanding its grammar. If this is what it means to know "how to use" a technology, then by extension we can also figure out what it means "how to learn to use" a technology by learning to find one's way around its grammar. Since this grammar is implicit and socially regulated, there are two closely related processes here: the first one is social experimentation, that is, we explore the grammar of a technology through trial and error experiments, carefully recording the results of each. The second one is an apprenticeship model, where we are never left alone to figure out the inner workings of this grammar on our own, but always find ourselves doing so by interacting with other users who exhibit various levels of understanding themselves. By continually testing, and by interacting with other users from whose experiences we also learn, we start to paint a picture of what this grammar looks like. This picture is always changing, as it is based upon the results of our continuing experimentation to figure out how far we can go.

## **But Nobody Reads Manuals, Anyway**

Some rules governing the use of a language are explicit. Many, even most, are not. We just grasp them; learn them over time just by using them. More to the point, we learn them by missing them, by not hitting the mark and usually being corrected by somebody else. This happens at several different levels: it happens when I misspell a word, and my word processing software conveniently yet annoyingly underlines it in red so I cannot miss the fact that I'm mistaken. But it also happens when your significant other gently kicks you beneath the dinner table to let you know you just said something inappropriate in front of your in-laws. It's not just strictly formal matters that come into play, but also matters related to the social regulation of expressions and their perceived appropriateness. Just like Aristotle pointed out about ethics, there are more ways to get it wrong than there are ways to get it right, and the process of learning a language is the process of compiling this string of gentle and not-so-

gentle “nudges” into something remotely systematic we can use in future instances.

This also becomes the way in which we come to grasp various forms of media and technology. And that is also why we often get it wrong when we get started: whenever we’re faced with the task of grasping the grammar for a new technology, the only thing at our disposal to do so is the known grammar for a previous technology. This is, of course, what McLuhan understood as hybrid energy: the fact that our understanding of any given media is given first and foremost by our understanding of media that preceded it. Such was the case, for example, with early television broadcasts, which were basically staged radio shows. Similarly the case with early web search engines: think of *Yahoo!* In the mid-90s, when its directory feature was actually more useful and developed than its search function. The archival concept of libraries was used to categorize and make sense out of an unstructured and chaotic collection of documents like the web was growing to be, and it wouldn’t really be until years later with algorithms such as *Google’s* that we began to understand there’s no single entry point or underlying structure to the web.

It also must be said that a fair share of the complexity of this process stems from the fact that we are never operating within the grammar for a single technology, and the multiple grammars that surround us are not necessarily compatible. Even more so, it is not only technologies that encompass grammars in this sense, but all sorts of objects, institutions and even people. We navigate at once the grammar of family relationships and that of co-workers, which need to be made compatible with the grammar of telephones and that of e-mail, of public parking lots and shopping malls and local governments and transportation systems and so on. There’s a McLuhan-ish spirit to this, of course, and to his understanding of what “media” are as our sensory extensions: these are all different structures in which our human capacities are extended and transformed, not linearly but in rather conflicting and simultaneous ways.

Several of the complexities surrounding our relationship to language were highlighted a long time ago by Ludwig Wittgenstein: he would acknowledge language as a global experience, something we “inhabit” much more than something we merely “use” – in very much the same way McLuhan would have us inhabit, and not merely use media. Wittgenstein has this to say about the interaction between multiple grammars, or in his own words, “language games”:

23. But how many kinds of sentence are there? Say assertion, question and command? There are countless kinds; countless different kinds of use of all the things we call “signs”, “words”, “sentences”. And this diversity is not something fixed, given once for all; but new types of language, new language-games, as we may say, come into existence, and others become obsolete and get forgotten. (We can get a rough picture of this from the changes in mathematics.)

The word “language-game” is used here to emphasize the fact that the speaking of language is part of an activity, or of a form of life. (Wittgenstein, 2009, pp. 14-15)

Given the very fast pace at which technological change has happened in the last few decades or even years, we now have the exceptional opportunity of being able to contemplate how entire grammars come to be, evolve, and even become obsolete. Indeed, this seems to be an underlying theme for McLuhan as well: only now can we become fully aware of the fact that “the medium is the message”, because only now is our media experience varied enough

that we can actually compare multiple experiences and become aware of similarities and differences. The media explosion of the 20<sup>th</sup> century meant societies and individuals suddenly found themselves in the middle of competing, conflicting media paradigms.

I'd like to illustrate Wittgenstein's description of how we play language-games with examples from a particular grammar most of us will probably be acquainted with: the use of the world's most popular social network, Facebook. There's about a 1 in 14 chance anyone reading this will be on Facebook, which is not bad considering I'm taking into account the entire world population.

I'd like to take us through a side road into the world of Facebook expressions through the point of view of a website called Failbook, dedicated to compiling humorous Facebook posts, which are humorous not necessarily because of their content, but rather because the framing of the posts makes them funny. It's not about jokes on Facebook; it's about Facebook jokes. The reason why they're usually funny is because there's some unspoken rule being broken that we can all easily identify just by being Facebook users: we're able to recognize something no one actually taught us, but in recognizing this "fails" we're also acknowledging and assimilating a social ruleset at the same time.

Take, for example, the following post, which in a very literal way illustrate the way in which the polishing of our understanding of any given grammar relies on social nudges from the people around us:

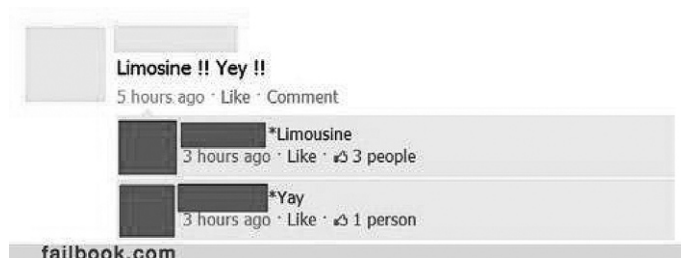


Fig. 8. "0 for 2"

Now compare this very literal example with Wittgenstein's explanation of how we grasp the rules of a given language-game:

54. Just think of the kinds of case where we say that a game is played according to a particular rule.

The rule may be an aid in teaching the game. The learner is told it and given practice in applying it. – Or it is a tool of the game itself. – Or a rule is employed neither in the teaching nor in the game itself; nor is it set down in a list of rules. One learns the game by watching how others play it. But we say that it is played according to such-and- such rules because an observer can read these rules off from the way the game is played a like a natural law governing the play. — But how does the observer distinguish in this case between players' mistakes and correct play? – There are characteristic signs of it in the players' behaviour. Think of the behaviour characteristic of someone correcting a slip of the tongue. It would be possible to recognize that someone was doing so even without knowing his language. (Wittgenstein, 2009, p. 31)



Because of its emerging nature, the grammar of digital media, of social networks and of Facebook in particular are full of this sort of slips, and Failbook is a testament to it. These slips are actually reconfiguring a series of previously defined, carefully bound categories of our social existence, like what a “friend” is and what our “relationship status” can be. Or the more or less clear separation of public and private, or in between our social circles. It is not uncommon, for example, to run into awkward situations such as the following:

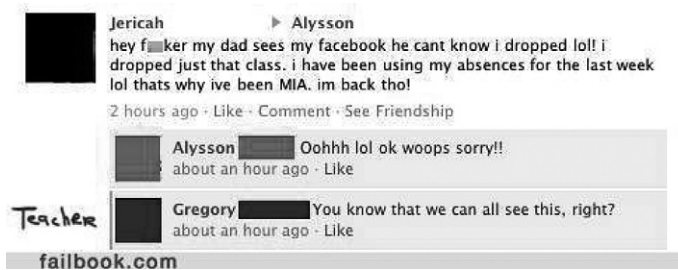


Fig. 9. “Secrecy FAIL”

Or, similarly:

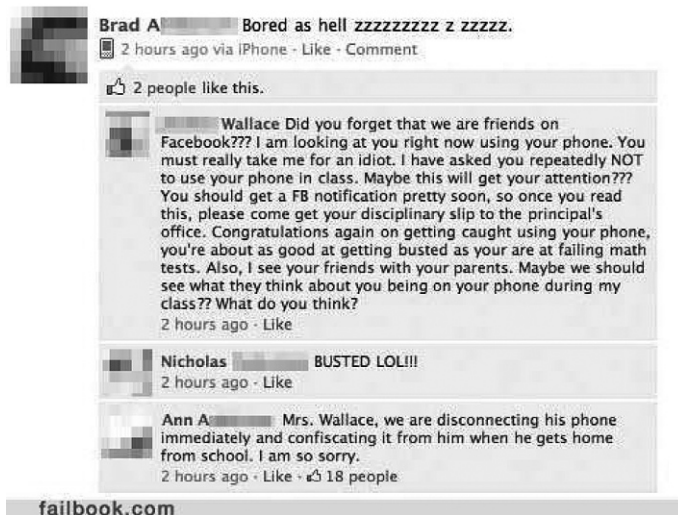


Fig. 10. “Busted in Class”

The fact that the Failbook community highlights these two instances is indicative of the fact that there are unspoken rules here that someone overlooked. By looking at these examples, it should be immediately obvious to us as competent users what it was: in social networks, social circles intersect in ways they don't in the physical world, and one must be mindful of that when communicating openly. This unspoken rule speaks to the ongoing renegotiation of public and private spaces: should teachers “friend” their students on social

networks? Does that entail restrictions on the lives they start publishing online? Should parent “friend” their children, or their children’s friends?

It is also possible for us to recognize when a certain grammar does not entirely fit with a social situation. Take the following example:



**Fig. 11.** “Brian Finds Out the Hard Way”

Is this an “appropriate” way to end a relationship? Probably not. Firstly, it is overly public. Secondly, it is quite impersonal. The caption to this post on the Failbook site read the couple had been going out for three years, all the more reason to assume breaking up would merit a more personal event.

Again, none of this is set in stone. Facebook terms of service do not prohibit this kind of behaviour, nor does its design: it is technically possible to do this. But the fact the Failbook would highlight this as a funny post indicates us something is not entirely right here. There’s some social rule that’s being broken at some level, which is what makes it funny to begin with. It’s funny because it’s true.

If we go back to Wittgenstein, we’ll find that this is precisely the way in which we learn how to “play the game”, how we come to grasp the rules of any particular grammar and to more or less discern what the bounds are for the reach of certain uses:

71. One can say that the concept of a game is a concept with blurred edges. — “But is a blurred concept a concept at all?” — Is a photograph that is not sharp a picture of a person at all? Is it even always an advantage to replace a picture that is not sharp by one that is? Isn’t one that isn’t sharp often just what we need?

Frege compares a concept to a region, and says that a region with- out clear boundaries can’t be called a region at all. This presumably means that we can’t do anything with it. — But is it senseless to say “Stay roughly here”? Imagine that I were standing with someone in a city square and said that. As I say it, I do not bother drawing any boundary, but just make a pointing gesture — as if I were indicating a particular spot. And this is just

how one might explain what a game is. One gives examples and intends them to be taken in a particular way. — I do not mean by this expression, however, that he is supposed to see in those examples that common feature which I – for some reason – was unable to formulate, but that he is now to employ those examples in a particular way. Here giving examples is not an indirect way of explaining — in default of a better one. For any general explanation may be misunderstood too. This, after all, is how we play the game. (I mean the language-game with the word “game”.) (Wittgenstein, 2009, p. 38)

By pointing this out as an example of how things fail (or #FAIL), Failbook is actually establishing a social precedent of how such situations shouldn't really be handled – lest you'd want to face the ridicule from the Failbook community yourself. No one's really telling you how it works, but it certainly doesn't work like that.

Again, there are two key ideas here that I think are especially relevant to our understanding of how we learn to use technologies. These are both taken into account within Wittgenstein's description of language-game operation. The first idea is that grasping the rules of a language-game (or in our case, the grammar of a particular technology) is done by trial and error, by missing the mark or observing others miss the mark and adjusting our expectations and understanding of our own expressions. By watching people fail to properly communicate on Failbook, we're indirectly building our own image of what successful communication looks like.

The second idea is that this all happens through an apprenticeship model. In other words, there's a community of language speakers from which we learn and who are continually “nudging” us and readjusting our use of different expressions. In other words, learning how to use a technology is always a social process, even when we consider those technologies to be somehow “socially alienating”: the use of any given technology is always socially regulated, and competent use implies understanding, even implicitly, that social ruleset.

## **Know Your Meme**

This is all good, but what's the point? Why make an emphasis on understanding technology as language, and technology education as language acquisition?

Because there's also a political side to this. In the early expressions and configurations of technological grammars we are seeing hints and glimpses of worlds to come – in the emerging and evolving practices of young and old people using digital technologies, future societies are being built. This was no news to McLuhan, who identified this as the role of the artist, who would present to us “Noah's arks” to test-drive the future and attune our senses to changes to come. McLuhan presented the notion that some of the artist's innovations would stick around in culture and become behavioural patterns. Given the right patterns, the blow affected by incoming technologies could be alleviated.

Art, in this model, happens at the innovation level. Out of the myriad, everyday expressions that take place everyday, some acquire a special singularity: some plays within a language-game inadvertently bend the rules and say something that can't quite be explained from within the given language-game. These expressions force us to take pause and regroup, to readapt our personal version of a grammar to incorporate a new possibility.

In other words, some expressions work without fully working. Wittgenstein would say some expressions don't say anything, but rather show something. These expressions are shrouded in what Walter Benjamin would call an "aura":

What, then, is the aura? A strange tissue of space and time: the unique apparition of a distance, however near it may be. (...) In the light of this description, we can readily grasp the social basis of the aura's present decay. It rests on two circumstances, both linked to the increasing emergence of the masses and the growing intensity of their movements. Namely: the desire of the present-day masses to "get closer" to things, and their equally passionate concern for overcoming each thing's uniqueness by assimilating it as a reproduction. (Benjamin, 2008, p. 23)

Benjamin is esoteric, but the gist of his description is that something feels awry about the aura (no pun intended). But the key to his argument is that the aura undergoes a significant transformation upon the appearance of technological reproducibility: as the singularity of any given work is taken away in new media, so, too, is the aura taken away, as the "here and now" becomes less important.

However, it would perhaps be more precise to say art and aura change their meaning – they are themselves hybrid objects that undergo transformations. For Benjamin, this transformation is inherently political: only when art can be dissociated from the here and now can it achieve political significance through serial reproduction. In too simple terms, art becoming advertising has a revolutionary potential. Aura as a metaphysical property ceases to be of importance; instead, we have aesthetic value understood in memetic terms, as a contest for survival. Andy Warhol would later describe art, along this line, as "anything you can get away with".

This is brilliant. Because if language changes because of irregular, unforeseeable expressions someone "gets away with", then the transformation and continuous recreation of any given grammar is bestowed upon its users. This process, vaguely hinted at by Wittgenstein, Benjamin and McLuhan in their own terms, is only now beginning to unravel in all of its complexity because the time that used to take for any incoming grammar to affect our senses and our relationship to other grammars used to be quite long. In turn, the pace of technological development was relatively slow compared to the accelerated pace we see nowadays. The purpose, though, remains mostly the same:

The primary social function of art today is to rehearse that interplay [between nature and humanity]. This applies especially to film. The function of film is to train human beings in the apperceptions and reactions needed to deal with a vast apparatus whose role in their lives is expanding almost daily. Dealing with this apparatus also teaches them that technology will release them from their enslavement to the powers of the apparatus only when humanity's whole constitution has adapted itself to the new productive forces which the second technology [the technology of the machine age] has set free. (Benjamin, 2008, pp. 26-27)

Based on all this, I want to arrive at a series of conclusions that are not necessarily new, but I consider it important to put them in this context. Because shifting our understanding of the cultural and social structure of technology imposes a series of constraints on how we

approach technological objects.

Firstly, because it renders a fair share of our technology education practices and social policies obsolete (and I must note here I'm basing myself on observations from the Latin American reality, so your mileage may vary). Most of our approaches in this area usually revolve around teaching how to use a specific tool or toolset for a given set of problems or situations. We're educating on the use of delivery technologies as opposed to social protocols. This is because of our misunderstanding of how technology works at the social level, but it is causing us to replicate a cultural model for the industrial age at a time when that model is increasingly becoming obsolete. In the process, we're turning younger generations into the process of assimilating complex grammars without any form of handholding or orientation, because of our own inability to recognise the presence of these grammars right before us.

Take, for example, the case of videogames and their relationship to education. Despite having Marshall McLuhan articulate the idea that "the medium is the message" almost 50 years ago, the case for videogames in education has almost always been framed in terms of their content, which has resulted in a series of very, very boring games. But this approach has totally glossed over the fact that all videogames are educational by their very structure, and that increasing numbers of people are being educated by them all the time.

Secondly, there's a cultural dimension to this that is quite significant, and it relates to the folklore of electronic man, or lack thereof. Not because there isn't one, but because we're failing to appreciate and document it because it is just so hard. There's not a shortage, but an overabundance of recorded material to sift through to determine what's culturally significant in the age of the web. But it is within these practices that new cultural structures and behavioural patterns are emerging, much faster than we can possibly identify them, even less so evaluate and contextualise them. But the folklore that is being constructed around emerging technologies is quickly becoming an intrinsic part of its grammar, and failure to dominate this folklore is widening the digital gap even more. Not only are we failing to properly educate huge numbers of people on how to relate to technology, but even when we are introducing them into the grammar of tech it turns out that grammar has gone somewhere else entirely already. It's like trying to teach English vocabulary with the dictionary changing in its entirety every five years.

Finally, there's the political aspect we can capture from Benjamin. There's a cultural emancipation stemming from digital technology that can only effectively take place if our understanding of understanding technology contemplates the fact that there are social and cultural grammars woven around technological objects. Understanding any given technology includes being able to introduce oneself within the corresponding grammar, to understand its elements and to be able to articulate meaningful expressions within it. That basic competence, as we've seen through language-games, also implicitly includes the capacity to articulate "meaningful meaningless expressions", or in other words, of transforming the assigned meanings of the elements of a grammar. Simply put: failing to understand linguistic aspects of technology means underutilising its potential and underselling its value proposition. It means using digital technologies as if they were tools of the industrial age, as opposed to reading within the emerging folklore of electronic man the keys to new articulating principles that are increasingly guiding technological development and, over time, the foundations for new cultural behaviours.

Marshall McLuhan expressed his concern at the effects of electric technology with an analogy to medieval monks being swept away by the technology of print, because they were

unable to identify the incoming changes that would take place with or without them. In our time, we might find a similar analogy in watching *Mad Men*, the television show about 1960s advertising executives from Madison Avenue. *Mad Men* works because it is perfectly dated, and we can see the characters living in a world that they acknowledge as eternal and unchanging, all the while we're perfectly aware that everything they know should radically change within two or three seasons. What we usually fail to notice is that *Mad Men*'s joke is on us. Just like McLuhan's medieval monks and *Mad Men*'s Don Draper were swept away by their times, so are we setting ourselves up to be swept away unless we change our collective attitudes towards our relationship with technology. Or, perhaps even more unfairly, we're failing to provide the vast majority of the world's population with the tools and skills they'll need not to be swept away themselves.

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