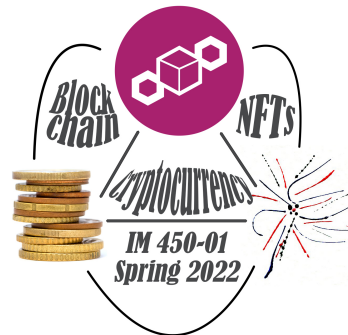# IM 450-01 Issues in IM:
Blockchain, Cryptocurrency, NFTs

Spring 2022

Class 5— February 3

Blockchain:
What changes in language are being forced by these new technologies?

Two particularly salient viewpoints:
1=Linguistic changes among Adults
2=Children and Language Acquisition

- Whenever we investigate changes in language use (writing or speaking) we keep in mind that the effects might be very different depending on the age group.

- We also have to recognize cultural differences.

- Potential/real effects on Adults can be VERY DIFFERENT from potential/real effect on children and language acquisition.

- Our general view in this class looks at Adult Americans like you - - - citizens of developed countries, with tech and opportunities as well as socio-economic, language, and educational differences that we should NOT erase via generalities.

- The class is just not geared for examinations of the many changes that exposure to tech introduces into infant and childhood language acquisition.

Changes in language from a bird's-eye view

- **Early studies concluded, for the most part, that computer-mediated communication reproduces the social, political, and economic relations that exist in the real world.**
  - **This is not to say that new media didn't introduce new linguistic aspects.**
  - **It posits that language use quickly adapted to new technologies BUT that new technologies could not escape the real world: social, political, and economic systems were changed but not expunged.**
  - **We cover this aspect OFTEN in IM 355: New media has to fit into extant life in order to diffuse.**
  - **Once diffusion takes place, we CAN see changes the new brings to the old.**
  - **BUT, most of the differences tend to focus on new words and new meanings (semantics) rather than new language structures (syntax).**

Changes in language from a bird's-eye view

- For example: most everything about using computers and networks introduced objects and processes that did not previously exist.

- Yet, the ways to diffuse language about these new things drew on what people knew (the old) as ways to bridge to the new.
  - The GUI operating system drew on metaphors of the standard office (file folders and trashcans and the like).
  - Networks were "centralized or decentralized," "serial or distributed" (all terms in network theories available before the internet).

- The internet, computers, and the rest all had to fit inside our social lives, our economy, our politics.
  - Changes were introduced, but none totally overthrew all language functions.
  - The shifts are real, sometimes subtle, but within the available system of meanings.

Before getting to blockchain specifics: Some general new media-related syntax changes.

- **New sets of language units became recognizable.**
  - **Rules for file-naming & referencing.**
  - **Terms for the infrastructure were not only semantic (email=electronic mail) but also syntactical (TCIP, HTML, and other programming languages have clear rules of order/grammar). Even everyday users have to enter properly constructed URLs.**
- **Rules for acceptable units of meaning changed**:
  - **Designated number of characters matters on Twitter (for example). Too long? The message doesn't qualify for inclusion.**
  - **Emergence of extended abbreviation system.**
  - **Usages that were previously "ungrammatical" became acceptable.**
  - **Punctuation (or the lack of it) became acceptable.**
- **Acceptance of graphics as equivalent to or additive with text**
  - **Emojis & emoticons don't have to follow "standard" word order.**
  - **Wide variety of Graphic elements (including motion) for highlights/emphasis.**

With high-end digital tech, the first syntax changes do not reach the public

- Blockchain development and implantation requires programming languages.

- Just as medicine, the law, engineering, etc., require practitioners to master specialized language and usage, blockchains require programming expertise.

- This sets the tech apart from "every-person" (so do the web and other digital tech).

- Each programming language might have special/unique syntax.

- Solidity, Java, JavaScript, Python, PHP, C++, C#, Go, Simplicity, Ruby, Rust, SQL, Erlang, Rholang, CX (and many others) can be part of the development and implementation process.

  - https://appinventiv.com/blog/best-blockchain-programming-languages/

With high-end digital tech, syntax changes might eventually reach the public

- But with Blockchain, not yet.

Semantic changes, new words with unique meanings and changes in the meanings of "old" words, enter the public lexicon as the tech diffuses.

- I've presented some basic terminology describing what blockchain tech is and how it works. You've been exposed to words and their meanings just as SOME people will (by being involved, studying/learning, doing general reading in the popular press, watching YouTube videos, etc.).

- Familiarity and facility with new terminologies plays a role in separating early adapters from the general public.

  - If the gap is too wide, if the general public can never quite understand the tech talk, the innovation will probably not diffuse.

  - Industry evangelists will try to define terms, coin metaphors, use less esoteric language in efforts to help the innovation diffuse.

Let's look at three Blockchain glossaries and chat about the potential for diffusion as terminology gets adopted (or not) by wider populations than just early adopters.

- **Blockchain Universal Glossary**
  - https://us.aicpa.org/content/dam/aicpa/interestareas/informationtechnology/downloadabledocuments/blockchain-universal-glossary.pdf
  - **Seems to me that many of these terms MIGHT be clear and usable enough to creep into more general/public use.**

- **Computer Security Resource Center Blockchain Glossary**
  - https://csrc.nist.gov/glossary/term/blockchain
  - **9238 terms: This glossary includes terms that enable everything about Blockchain tech to operate. That includes all the computer AND network information.**
  - **This strikes me as way more than any lay person can manage.**
  - **Some "techs" don't know this much .**

Something in the middle

- **A Blockchain Glossary for Beginners**
  - **https://consensys.net/knowledge-base/a-blockchain-glossary-for-beginners/**
- **Clearly challenging. Probably beyond the interest and ability of most lay users.**
  - **But how much of this would a lay user really have to know?**
  - **Didn't the CSRC glossary on the previous page remind us that MOST users don't have to know ANY of the technical language that goes into running the Internet? And yet people use it all the time.**
- **Further: Blockchain-tech can apply to ANY type of transaction. That means virtually ANY industry/business/enterprise.**
  - **Those applications would each/all require specific terminological knowledge about the specific industry/business/enterprise at hand.**

So what changes in language will be related to Blockchain?

- Comments that I'm making about this are about the underlying tech, Blockchain, NOT about crypto-currency and/NFTs or anything else that USES blockchain tech. We'll deal with those language changes on their own terms.

- It's possible that those uses of blockchain-tech will enable it to diffuse and be used. BUT THOSE WILL NOT DIFFUSE THE LINGUISTIC CHANGES SPECIFIC TO BLOCKCHAIN. Instead, those uses would only encourage the changes brought about by each specific applications of the tech.

- There is some question as to the degree that an emerging UNDERLYING tech can survive if it's users (at higher levels) can't grasp the meanings associated with it. Maybe, maybe not.

So what changes in language will be related to Blockchain?

- Beyond the beginning of diffusion of basic-functional terminology at a pretty general level, we can't yet see changes to language in the general population. The technology is too young.

- But we can guess about the outcomes, based on the development and deployment of the Internet.

- If blockchain is to diffuse, a limited series of terms will have to emerge into the common lexicon.

  - Users will have to, generally, understand what they mean and how they work.

  - Once the words are used generally, their meanings will emerge and become part of the everyday lexicon of the culture.

So what changes in language will be related to Blockchain?

- Platforms/intermediaries will take over from early adaptors and make blockchain easy and transparent for everyone else. Generally this will centralize and commoditize functions that are now de-centralized and free. The language that popularizers use will become the lingua-franca for the tech.

- For example:
  - "When you use our site, we collect data in order to improve the way our site operates and to make that experience personalized for and useful to you."
  - Language changes: Only some users know that this covers over the real meanings of the functions. "We are stealing your private information to make money" becomes "we are personalizing your experience."

What happens if changes in language related to Blockchain don't occur?

- **If such a lexicon does not develop, one of two things will happen:**
  1. **Blockchain tech won't diffuse and will die off.**
  2. **Blockchain tech won't diffuse, but will be used only by a "sub-culture" of geeks and or criminals. It won't go away, but it won't go mainstream.**

Questions or Comments?