Scaffolds & Sophistry

On the relationship between consciousness, language, and competence

Abstract: The proliferation of information in the twentieth and twenty-first centuries, combined with the advent of electronic communications technology, has fostered a cosmopolitan and misinformation-rich environment that has left many individuals vulnerable to deception, sophistry, and ideological possession. Linguistic and developmental root causes of these vulnerabilities are examined, with a focus on the human language habit and ego development theory. Opportunities for the scalable development of misinformation-resistant human beings are outlined, and the necessity of faith in the context of education and human development is discussed.

Keywords: language habit, ego development, mental models, misinformation

I. INTRODUCTION

It is commonly accepted – perhaps a truism – that humankind is living in the "Information Age", a period of history marked by the invention of the transistor, the advent of digital computing, the creation of the internet, and the proliferation of facts, statistics, knowledge, and advice of all kinds. Indeed, over the last two hundred years, the average person's information intake has grown from the morning's newspaper and workplace gossip to a bouquet of books, podcasts, television shows, legacy media broadcasts, online news articles, and social media posts, punctuated by the occasional Google or Wikipedia search.

The power to choose, the ability to search, and the freedom to share granted by electronic media have given individuals the ability to understand and change the world in new ways. Radio, one of the first forms of electronic media, fuelled important countercultural movements in the mid-1900s (Land 1997, Crider 2020). Social media, and the access of information it provided in the face of repressive regimes, played a key role in the Arab Spring by enabling the widespread dissemination of stories about injustice, oppression, and hope (Howard et al. 2011). The internet, a portal to vast stores of accumulated knowledge and a "marketplace of ideas" in the truest sense, has served to heighten consumer awareness (Booth & Matic 2011), create a new class of entrepreneurs through peer-to-peer communication (Godin 2008), and provide new ways for people to learn outside of the traditional classroom (Strong 2021a).

However, despite the many positive impacts of electronic media, the affordances of choosing, searching, and sharing come with inversions and drawbacks (McLuhan 1964). Although the medium of radio did allow for grassroots broadcasts to flourish, the prevailing interests were able to nearly monopolize the airwaves: in the 1930s, this facilitated Hitler's rise to power, for example, by inviting his compelling oratory into the homes of desperate Germans across the nation. Similarly, television is almost entirely the domain of entrenched interests and massive corporations: for decades, the dozens of channels available to consumers gave the illusion of choice while privileging content that reflected and reinforced the mainstream culture.

The internet, despite allowing for a plurality of voices to be heard, has created new issues to contend with. The existence of so-called "fake news" and "disinformation" is a major concern

amongst governments and media outlets, who find that they are communicating to an increasingly skeptical public and competing with social media influencers who may have more charisma than integrity or authority. The suggestive algorithms built into many search and suggest features have unintentionally created "echo chambers" where people can develop profound biases as a result of the information they are provided. Finally, the internet has allowed for the creation of many different subcommunities, some of which are believed to contribute to violent radicalization (Koehler 2014).

In addition to these immediate and obvious problems, the new ways in which people access and consume information have subtly altered their relationship to that information. People of today may have the world at their fingertips, but they have also become responsible for developing their own understanding of that world from the streams of information they encounter (Kelly 2016). The certainty that was characteristic of Western cultures in the early 1900s and the Cold War, driven in part by the mediums of newspapers and television, has given way to a more provisional, relativistic, and hesitant way of knowing that is more suitable for life online[i].

Unfortunately, the demands and pressures of this new media environment have proven to be too much for many. Conspiracy theories like QAnon have captivated millions of minds (Moskalenko & McCauley 2021), and the growing chasm between political groups suggests that even "average" people are losing their ability to develop a balanced viewpoint (Garimella & Weber 2017). These trends are perhaps most clearly evidenced by the disparity in public opinion regarding the COVID-19 pandemic and the international response: one "side" believes wholeheartedly in the efficacy and safety of the vaccines, while the other is alleging crimes against humanity or refusing the vaccine at all costs.

Although the effects and consequences of "misinformation" are becoming especially pertinent in a post-COVID world, the tendency for people to be led astray by bad information is in fact a perennial problem. Ancient Athens was home to the Sophists, who honed the Western capacity for rhetoric in the search for worldly power. The dogmatic teachings of the Catholic Church held Europe in thrall for over one thousand years after the end of antiquity. Following the Enlightenment, founders of universities publicly lamented about the state of general knowledge (Newman 1852), scholars observed the rise of an "intellectual class" with more influence than insight (Hayek 1949), and even modern thinkers deride the "intellectual-yet-idiot"; people of too much reading and not enough common sense (Taleb 2017).

Given the ubiquity and unavoidability of misleading information in the public sphere and the persistence of those who peddle this false knowledge, it is becoming increasingly necessary to develop an understanding of the mechanisms by which people become susceptible to these influences as well as potential solutions for these eternal problems. To that end, this paper will explore some of the root causes of our collective susceptibility to deception, sophistry, and ideological possession. It will suggest that some of the problems we are experiencing may be linguistic and developmental in nature. Finally, it will explore potential solutions to the misinformation epidemic, the importance of real-world experience in developing a resistance to information-based manipulation, and the inescapable necessity of faith.

II. MODELS AND MAPS

At the root of the human vulnerability to deception and misdirection is our inexhaustible need for information of any kind. The drive to acquire knowledge is so fundamental to the human experience that information is often metaphorically equated

with life-giving sustenance in phrases like "thirst for knowledge", or even explicitly conflated with food, such as in the Biblical story of Adam, Eve, and the forbidden fruit.

This natural curiosity, or desire to know, emerges from the primary way in which human beings relate to the world around them: through the creation of internal representations, or "mental models", which help direct attention, interpret surroundings, and coordinate productive responses to stimuli (Strong 2021b). For example, an emergency room doctor's mental model of a healthy human body, based on years of rigorous study and a wealth of medical information, helps them quickly identify a patient's symptoms and develop preliminary diagnoses. Similarly, someone's internal model of their romantic partner might prime them to notice subtle cues that indicate a shift in their partner's mood, as well as empower them to determine what change in behaviour is required to maintain harmony in the relationship.

Beyond helping humans respond effectively "in the moment", internal representations also aid in the construction of long-term plans. Julian Jaynes, a Princeton psychologist, identified the existence of an "Analog I", or a hypothetical self, that can be projected into potential future scenarios: this allows for experimentation without risk as well as the development of multiple provisional futures (Jaynes 1976)[ii]. Jordan B. Peterson, a clinical psychologist from the University of Toronto, has explored at length the existence and structure of what he calls "maps of meaning", internal models that represent both external facts and the motivational significance of those facts for our immediate and distant goals (Peterson 1999)[iii].

The human propensity to model our surroundings has even been found in infants, who have often surprised researchers with their ability to deduce the workings of mechanical puzzles, as well as in toddlers, who seem to be in a constant state of learning and asking "why?" (Gopnik 2016). Although every parent has found themselves exasperated by their child's "insatiable" curiosity at one point or another, the construction of mental models through questioning, research, and experimentation is a prerequisite for survival. Without these models, even trivial questions like "What will happen if I touch this stove? Should I eat all the cookies in the cookie jar? What will happen if I throw this rock at that car? How do I get to school? What should I do for a career?" could only be answered by taking random action and hoping for a positive result. Therefore, the development of internal representations, mental models, or maps of meaning that correspond to the real world and engender productive action becomes an important part of not only childhood, but adulthood as well.

The mental model of the world that someone possesses not only influences how they respond to situations, but also the types of goals that they set, the beliefs that they have, and even how they perceive environmental stimuli (Peterson 1999). Thus, there exists the potential for a recursive effect, or vicious cycle, where bad information leads to a false belief, which leads to misinterpretation of downstream events and more false beliefs. This can be seen in the special case of child abuse, where foundational assumptions about the self and the world formed in the early years of life have subtle-yet-powerful influences in later years (Miller 1979, Erikson 1994).

It naturally follows from this phenomenon that "fixing" or "correcting" someone's mental model is key to addressing misinformation, deception, sophistry, and ideological possession. However, a deeper understanding of how these internal models work is required in order to do so. Specifically, it becomes necessary to investigate the "substance" of these internal representations, and to ask what they are "made of" and how they come to exist.

III. THE PHENOMENON OF JARGON

The existence of jargon, or meaning-laden words or expressions used between experts in a particular discipline, provides a helpful bridge between the idea of internal representations and the linguistic dimension of the misinformation problem. Take, for example, the concept of a king in chess. "King" is an arbitrary sound that we make, a set of scribbles on a piece of paper, a male ruler of a state or country, or a small figurine with a cross on its head. Yet, to a chess player, the king is also the piece that can only move one square in each direction, can be put in "check" by other pieces, and must be protected at all costs to avoid "checkmate", or losing. For chess players, the word "king" conjures up a gestalt of images, rules, strategies, moves, and even board positions. To non-players, "king" is simply a male head of state, and nothing more.

Another example is the popular mnemonic "BEDMAS", which stands for "Brackets, Exponents, Division, Multiplication, Addition, Subtraction". This elegant construction, which bundles six mathematical operations and their order of execution into an easily remembered format, has been used for many decades to help students comprehend and solve mathematical problems. The acronym is completely unintelligible to anyone who has not learned arithmetic, yet immensely helpful to those who have.

In the hands of experts, or those versed in the terminology of a particular subject, pieces of jargon like "king" or "BEDMAS" are far more than words or acronyms: they are reference points that evoke concepts, memories, and parts of one's mental model. These "mental objects" can then be manipulated and experimented upon in the conscious mind. This connection becomes even more apparent in some special circumstances: consider a marketing student who views every problem through the lens of the elementary "4Ps" (Product, Promotion, Place, Price), which allows them to sort between different types of information and construct solutions. The 4Ps, themselves pieces of jargon, serve as the foundation for the construction of this student's entire mental model, and without this jargon, marketing problems would be rendered unintelligible to this student.

From these examples, it would seem that language use somehow precedes, coincides with, or otherwise enables mental modelling activity in human beings. However, these isolated situations do not fully capture how closely language and mental activity are related and the implications that arise from this relationship.

IIII. THE LANGUAGE HABIT

If "jargon" denotes a word that has a special meaning or connotation for a select ingroup, then it stands to reason that every word in every language could be considered a form of jargon, as words are intelligible only to those fluent in that language, evoke gestalts of meanings and connotations that depend heavily on context, and are used to construct mental models in ways that make the words themselves functionally inseparable from the models they help to create.

Consider, for example, the word "anger". As we learned when we were young, this refers to a certain emotional state that usually results from an unfortunate event or a frustrated goal of some kind. To "be" angry is to be consumed or dominated by this emotional state. However, anger is just an arbitrary word; scribbles on a page, sound waves in the air. It does not – and cannot – capture the full extent of this emotion. The best this word can do is provide a linguistic reference point for an individual, or a group of individuals, regarding a complex concept. Yet, when we feel angry, our experience of the emotion is almost inseparable from the word itself, so deeply has the relationship been established.

In fact, the relationship between our experiences and our words is rather

complicated. Although it is true that prelinguistic infants are quite capable of modelling their surroundings and responding to them, developmental psychologists have consistently noticed a correlation between verbal and cognitive development (Bloom & Kiel 2001), as well as specific arrestations of development in children that grew up in nonverbal, isolated, neglectful, or abusive environments (Vyshedskiy et al. 2017). Notably, not only do nonverbal children perform poorly on tests involving language, they also struggle to understand spatial concepts like “behind”, “into”, or “under”, and struggle with mental visualization tasks that involve, for example, the imaginary rotation of an object.

The link between language acquisition and cognition extends beyond the special and unfortunate cases of feral children: slight differences in spatial reasoning have also been found between speakers of different languages (Levinson 1996), and even the mental manipulation of numbers has also been shown to depend on one’s language ability (Bloom & Kiel 2001).

Given this array of evidence, it becomes apparent that many mental operations people take for granted may actually rely on a foundation of language, where individual words, symbols, sounds, or images serve as internal reference points for complex abstract concepts. Since virtually every human being is ensconced in a world of words from the time they are born, it is easy to see how this relationship could have gone unnoticed until the days of modern psychological inquiry.

At this point, it may seem logical to conclude that every thought that humans have is therefore “made of” language. However, the matter becomes more complicated when the phenomena of intuition (Strong 2021b) and unsymbolized thought (Hurlburt & Akhter 2008) are taken into account. In the case of intuition - particularly expert intuition - a detailed mental model appears to facilitate a kind of “knowing” that is instinctual and prelinguistic and can actually outpace conscious thought: in this way, language can give rise to nonlinguistic responses. In the case of unsymbolized thought, entire thoughts may appear in the mind in an undifferentiated, nonlinear, and “complete” manner, which suggests that one need not necessarily construct sentences in order to think.

The complexities that researchers have encountered in this area may be partially explained by the unique responsibilities of each hemisphere of the brain. It has been found that the left hemisphere tends to operate in a more linear fashion and tends to be the main center of language, whereas the right hemisphere works holistically and metaphorically (Peterson 1999). Although both hemispheres are involved in language processing (Chiarello & Beeman 1998), the differences between the logical and metaphorical approaches employed by each side of the brain seem to give rise to different mental capacities and operations. While the left hemisphere grants us the capacity for “rational” processing people are familiar with in the Western intellectual tradition, the right hemisphere seems to be the center of general comparisons, intuition, “leaps of logic”, and metaphor.

Defined as “a word or phrase for one thing that is used to refer to another thing in order to show or suggest that they are similar”, a metaphor is most often seen in Western culture as a stylistic addition to a piece of writing. However, as some scholars have shown, the use of metaphor is deeply embedded in language and serves to make abstract phenomena or experiences comprehensible by rendering them in physical or spatial terms (Lakoff & Johnson 1980). For example, the concept of “good” or “positive” is often associated with the direction “up”: people speak of being “down” when they are sad, or of “rising to the top” of an organization after a string of promotions. The virtue of

dependability is associated with the dominant hand in most of the species, and is encapsulated in the term “right hand man”. We even anthropomorphize inanimate objects by speaking of the “foot” of a mountain, the “leg” of a chair, or the “head” of a table. Even a simple sentence like “Julia pointed the gun at Harry” invokes the metaphor of “point”, a physical quality of an object that is typically dangerous and focused in a single direction.

Indeed, humans are constantly using metaphors to describe things in terms of other things, often using the physical world as inspiration. Interestingly, this practice is even used when describing various functions of the mind: people who “grasp” an idea often say they can “see it clearly”, and people who are “slow” to understand are said to be “dim”, “thick”, or “dull”. We often say that we “grapple” with problems and have moments when “lightbulbs go off” in our heads. It has even been argued that consciousness itself is an emergent human property that stems from language, as constructing a mental model of one’s own self and mind requires the use of language, and therefore of metaphor (Jaynes 1976).

As can be seen, the relationship between human mental activity and language is extraordinarily complex and deep: this is a topic that requires focused attention from researchers in the future. However, it seems highly likely that cognition is intrinsically linked to consciousness in two ways: not only are our mental models made out of language one way or another, but those models then interact with the world in ways that are “metaphorical” or otherwise not explicitly linguistic, such as through spatial reasoning, intuition, and unsymbolized thought.

For these reasons, the key to understanding deception, sophistry, and especially ideological possession lies in the realm of language and its relationship to the mental models humans create to understand the world. As will be shown, deceptive language serves to corrupt people’s mental models and divorce them from reality, but mechanisms by which people can be emancipated from such a state do exist and have yet to be deployed at scale.

V. DECEPTION AND SOPHISTRY

When viewed within the context of mental models and language, the impact of a lie on a human being becomes easier to comprehend and elucidate. Essentially, a lie is a piece of information encoded in a set of words that is introduced into someone’s mental model and then taken to be true. If left unchallenged, the false information may corrupt other parts of the mental model that are related to it, creating a situation where someone ends up acting out of accordance with reality.

A simple example of such deception would be in the archetypal scenario of an unfaithful spouse. Their unfortunate partner, who is unaware of the existence of an affair, models a large part of their life on the assumption that the marriage is sound, and will celebrate anniversaries and other milestones in a state of blissful ignorance. They may even discount or misinterpret “warning signs” because infidelity is so far outside of the bounds of their mental model that it is not even a consideration. Of course, the charade is maintained over time with a continuous stream of lies, serving to further entrench the original deception in the unfortunate partner’s mental model.

Sophistry, like deception, uses words in the pursuit of power. However, unlike deception, sophistry operates primarily by confusing people and preventing them from using their mental models effectively. It does this by using misdirection rather than outright lies, encouraging people to focus on the wrong parts of their model or to discount their instinctual response. If the archetypal cheating spouse is caught, for example, it is unlikely they will deny the facts: instead, they may attempt to give their partner the run-around by using

excuses, blame, and other "language games" to move the focus of the conversation away from their infidelity and onto a less inconvenient topic. More subtle versions of sophistry are employed by marketers, journalists, and public relations professionals to manipulate public sentiment. A well-placed adjective in a headline, the framing of a broadcast news story, a publication's editorial strategy, and the practice of corporate branding are all attempts to activate specific aspects of consumers' mental models and avoid others.

Despite the ever-present threat of deception and sophistry in the realm of human affairs, people seem to have a natural defense mechanism in the form of intuition (Albrechtsen et al. 2009). When something we are told does not correspond to our mental model, we "feel" that something is wrong, even if we aren't able to explicitly refute the lie. However, this defence mechanism can be bypassed or overpowered, particularly by authority figures (Milgram 1963). Additionally, we are especially vulnerable to deception and sophistry when we do not possess full knowledge of the matter or situation at hand, and therefore lack the capacity for accurate intuition.

VI. IDEOLOGICAL POSSESSION

A more extreme and pernicious form of corrupted mental modelling is ideological possession, whereby someone becomes consumed by an external set of ideas to the point that their personality is indistinguishable from "their" ideas. Examples of such possession can be found on both sides of the political aisle, in every world religion, and in some sports leagues: in all of these contexts, a set of ideas or a series of well-placed words can be utilized to overcome the natural human revulsion against violence and encourage individuals or groups to commit heinous acts.

Unlike deception or sophistry, ideological possession is a long-term affair that can take months or years to occur. It usually entails sustained involvement in a subgroup or cult-like atmosphere, restricted access to outside information, and a strong disincentive against asking questions. By way of these tactics, and others like them, leaders of niche groups - or entire nations - can replace the information in their followers' mental models with language of their own design, gradually revising how people think, feel, and act.

Interestingly, one of the "symptoms" of ideological possession, particularly in the political sphere, seems to be the extensive and unreflective use of jargon. On the political left, critical race theory, a highly technical set of ideas which originated in the field of law (Delgado & Stefanic 1995), has consumed the rhetoric of activists and politicians alike. Similar uses of highly specialized language can be found within Christianity and Scientology. Additionally, when put under pressure or in a debate, ideologues tend to revert back to "talking points", which seem to be well-entrenched aspects of their language-based mental model. Two particularly obvious examples of this are the tendency of some Christians to quote from the Gospel of John and the Epistles instead of forming an argument in their own words, or left-wing activists reverting to accusations of racism and homophobia in almost every discussion.

For the possessed, their mental model - which is likely founded on lies and sophistry, if not human error - becomes more real than the world itself. This becomes a significant problem, as interactions with the "real" world become increasingly strained and problematic, and inconsistencies with doctrine, dogma, or the "party line" become more difficult to justify. Although some people are able to gather enough internal resources to see through the manipulation and escape, oftentimes a combination of strong authority figures and the threat of social isolation keeps many minds in proverbial shackles.

VII. EGO DEVELOPMENT THEORY

To better understand why ideological possession is so pervasive and persistent, it becomes necessary to examine the types of people who are most susceptible to such influences. Although the existing literature has found risk factors for cult involvement to include personal distress, spiritual "seekership", family dysfunction, and disillusionment with life (Almendros et al., 2007), ideological possession is a deeper issue than simply joining a subculture or niche group. As evidenced by the bloodshed of the 1900s, it can affect people of any educational level and societal background, and therefore deserves a closer examination.

Take, for example, a stereotypical Ku Klux Klan recruit. It could be argued that such a person likely possesses a poor education, a restricted media diet, and lives in a rural area with very few opportunities for meaningful social interaction with immigrants. They came from a rough family background, don't have a well-developed personality, and don't have much in the way of social support or connection. They also lost their manufacturing job a month ago when the plant got moved to Bangladesh, leaving them disillusioned and anxious about the future, albeit fiercely patriotic. It becomes very easy to see how a charismatic leader can begin to convert this person: perhaps it begins with a conversation at a bar, where national news is re-interpreted through a "new light" and the "real problems" of society are set forth for discussion. The recruit is later given a role within the Klan, which comes with a title and the feeling of meaning. At the point where the recruit is proactively seeking out alt-right sources and rejecting viable ones, the possession has taken hold and has become self-perpetuating.

What is crucial to observe in the above example is the lack of a well-defined sense of self, particularly in the context of a complex and multicultural world. Having a difficult upbringing can have profoundly negative effects on personal development, and a substandard educational experience will likely create more problems than it solves. A lack of a social group leads to an underdeveloped sense of self with regard to other people, and the dearth of opportunities to interact with people from different races leads to an underdeveloped sense of self with regard to other ways of life. In effect, this hypothetical Klan recruit doesn't know who they are, nor do they have any way of understanding or interacting with other cultures. Furthermore, their difficult job situation has placed them in a situation where they feel like they do not have control over their life, which leads to frustration and the urge to blame: such an internal milieu is fertile ground for charismatic leaders and manipulators, who stand ready to offer easy answers to anyone willing to listen.

Although the example given may seem uncharitable to rural white Americans, several of the characteristics in that hypothetical situation are now endemic in Western society, particularly disillusionment, fear of the future, a perceived lack of control over one's life, and a high level of resulting frustration. Put simply, the mental models that many people currently possess are not able to handle the pace of change and the volatility present in the modern economy, leaving them vulnerable to external influences that appear to solve their problems but actually lead them astray.

Another example that highlights these particular difficulties of modern living would be a hypothetical young professional, perhaps female and in her late twenties. After several years working as an individual contributor in her field, she is promoted to a managerial position where she is tasked with running a small division within her organization. In addition to a number of new personal responsibilities, she must also "wear new hats" and spend time coaching, training, reprimanding, and following up with her team, some of whom are male industry veterans who are older and more experienced than her.

In this situation, it is easy to see how disillusionment, fear of the future, and a perceived lack of control could create an unhappy situation for this young professional. Perhaps the new role is more work than expected, or there is a six-month review that creates future anxiety. Perhaps the (older male) team does not respond well to this woman's attempts to manage them, leading to missed deadlines and dysfunction. Perhaps she is given targets that are impossible to hit, leading to a feeling of lost control.

It is unlikely that this young professional would join a cult or hate group as a result of her challenges at work. However, the general pattern of her challenges is similar to that of the Klan recruit. What they both *lack* is a mental model that can accommodate an increasingly complex world, what they *seek* is information that will help them make sense of their situation, and what they *get*, at least in the case of the Klan recruit, is a ready-made mental model that helps the world make sense again. Given the young professional's situation, she might seek out some things to add to her mental model by way of executive coaching or nonfiction reading.

Indeed, when people are placed into situations that are beyond their ability or comprehension, the new information they receive cannot be reconciled with or processed by their mental model. The resulting tension between the "old" ideas of the mental model and the "new" ideas they have encountered gives rise to confusion, frustration, or cognitive dissonance. Here, either external guidance becomes necessary to navigate the situation, or the mental model must be reconfigured to accommodate the novelty. This is how ideologues and charismatic leaders exert their influence, as they offer seductively easy answers that can resolve internal tensions and provide a coherent sense of direction and meaning in a complex world.

It is important to emphasize that mental models are not static entities: they are under a constant process of construction and reconstruction as people move through their lives. Although this is generally accepted to be true for the case of children (Piaget 1964), changes in adults' mental models have also been the subject of study since the mid-1900s and are the purview of a field called ego development theory, or EDT. Pioneered by independent scholar Jane Loevinger in the mid-1900s and furthered by researchers at Harvard and elsewhere since then, this robust-yet-underappreciated body of research is largely founded on the relationship between language and mental models (Cook-Greuter 1999).

At the heart of this theory is the concept of the "ego". First conceptualized by Freud as the component of personality that is responsible for channeling selfish impulses into socially-acceptable expressions, researchers in EDT have refined the concept to refer to the part of the psyche that interprets experience, makes sense of it, and constructs a stable self-identity (Cook-Greuter 2013).

It has been found that the adult ego is capable of developing through several unique stages in a lifetime, which encompass unique ways of making meaning and relating both to the world and to the self (Kegan 1994, Cook-Greuter 2013). Additionally, empirical evidence has demonstrated that the meaning-making capacity of humans is reflected in their language and can be measured using open-ended questions (Cook-Greuter 1999, Lahey et al. 2011). Research also suggests that stage-appropriate interventions can catalyze or facilitate growth in someone's level of development (Manners et al. 2004).

NAME OF STAGE	%AGE OF ADULT POP.	CHARACTERISTICS
SELF-PROTECTIVE	4.3%	- Gains at the expense of others, wins any way possible - Self-oriented, "might makes right" attitude - Relationships primarily based on power
CONFORMIST	11.3%	- Accepts traditions, inherited values, and orders from authority - Gains meaning from belonging to a group or "tribe" - Avoids and soothes group conflict
EXPERT	36.5%	- Differentiates self from group based on skill or talent - Prioritizes "doing things right" as defined by them, their data - Excellent individual contributor, causes friction on teams
ACHIEVER	29.7%	- Finds success within the system, achieves goals through teams - Can "step into a role" or "wear a hat" as situations demand - Often entrepreneurial, intrapreneurial, or leaders of some kind
INDIVIDUALIST	11.3%	- Questions one's own beliefs, assumptions, inherited values - Steps outside of convention to propose unique ideas - Can hold and appreciate multiple perspectives simultaneously
STRATEGIST	4.9%	- Breaks convention and standard procedure… strategically - Sees change as an iterative and emergent process - Minimum level required to reliably lead organizational change
ALCHEMIST	1.5%	- Able to reinvent and transform self and others - Finds a "third solution" to paradoxes and conflicts - Capable of leading societal change through visionary action
UNITIVE	0.5%	- Can appreciate the need for the ego while taking perspective on it - Taking part in the ongoing process of humanity - Dualistic, unconventional, wise perspectives

Information from "Nine Levels Of Increasing Embrace In Ego Development: A Full-Spectrum Theory Of Vertical Growth And Meaning Making", Susanne R. Cook-Greuter (2013) & "Seven Transformations of Leadership", David Rooke, William R. Torbert (2005)

In terms of population, the most common developmental stages that human beings occupy are known as "Conformist", "Expert", "Achiever", and "Individualist", together comprising over eighty-five percent of the adult population. These four different styles of meaning-making can be understood as four different configurations or types of mental models, and are responsible for many of the intrapersonal and interpersonal phenomena we experience in the modern era.

For example, the "Conformist" stage is experienced by most human beings during their pre-adolescent and teenage years, and is marked by a desire to "play by the rules" and "fit in with the crowd". People in this stage tend to be defined by their group affiliations - one might think of a high school student dressing a certain way or an activist lost in their cause. It is easy for people with this type of mental model to view social relations in a simpler "us and them" dichotomy: this division can be drawn along racial, religious, national, political, or ideological lines. To the Conformist, traditions are supremely important, and inherited values are accepted unquestioningly. As is typical of adolescents and some adults, trends and fads are not seen as such, but

rather enjoyed unironically. The diehard Trump fan, the "woke" activist, and teenagers in cliques at school can all be seen as manifestations of the Conformist stage.

The maturation process, which for most now includes a primary and secondary education, and for many includes some kind of postsecondary education or training, develops within the adolescent a capacity for genuine self-reflection. This is seen in the striving of the Western teenager for a sense of identity, which is eventually channeled into a stable identification with some kind of role within society. Thus, the "Expert" stage can primarily be characterized by a need to excel at a particular function or skill, or to occupy a position within the social and economic system. People at this stage have often progressed beyond traditional or inherited values and may even define themselves in opposition to them, much to the shock and dismay of their kin groups. However, the Expert's powers of introspection are not yet fully developed, and they may unwittingly define themselves in relation to people that they define as luminaries, thought leaders, or authorities. At work, they may be so focused on "doing things right" that they may lose sight of larger organizational objectives, or even the importance of key relationships. The cloistered university professor, many young startup founders, and the self-assured engineer are all manifestations of the Expert stage.

Although researchers have identified several stages past the "Achiever" stage, this particular stage seems to be the current "ideal" developmental level of Western civilization. Characterized by a rational, logical, or scientific worldview and the beginning of an appreciation for systems, Achievers care less about "doing things right", like Experts, and more about "doing the right things". True to their nickname, Achievers often prioritize success, accomplishment, and self-improvement. They are more independent than previous stages, and often become entrepreneurs, managers, or leaders in some way: unlike previous stages, they are developmentally capable of navigating the varied demands presented by these complex roles. Whereas Experts tend to have a myopic view of their career trajectory, Achievers have a better sense of how they exist "across time" and how they might grow and change. Because of their logical nature, Achievers care about root causes and reasons. They analyze situations and find optimal solutions. Most importantly from a Western perspective, they are able to "think critically".

Between the Achiever and the Individualist, a significant change in perspective occurs that marks the beginning of a radically different way of meaning-making. Whereas the "conventional" growth trajectory between the Conformist, Expert, and Achiever stages is marked by increasing individualization, an embrace of rational scientific thinking, and the pursuit of productive goals within society, the "postconventional" stages are characterized by the development of intersystemic thinking, holistic and harmonious approaches to problem-solving, and the capacity for self-transformation.

People who develop beyond the Achiever stage to the Individualist stage find themselves at the beginning of an entirely new kind of journey. For example, one becomes able to genuinely grasp the idea that there is value to having a multiplicity of perspectives at hand. A benefit of this "realization" is that Individualists become capable of holding more than one perspective internally at one time, and can even begin to take "perspective on perspective". This means they can question how they came to believe certain things or hold certain ideas, and therefore begin to step outside of the cultural programming they were exposed to as a child. Individualists, and people of even higher stages, typically become potent forces for change in their workplaces and communities as a result of their unique,

unconventional, holistic, and visionary perspectives.

When viewed within this framework, the challenges faced by the hypothetical Klan recruit and the young manager can be appropriately contextualized and understood. For example, given the Klan recruit's lack of identity outside of a group, it is likely that they are operating at the Conformist level of development. Although this hypothetical recruit may have a rough definition of who they "are", this definition is subject to strong influence by external relationships and inherited values, and in the case of ideological possession would be indistinguishable from them. On the other hand, the young manager is likely at the Expert level, as she has been an individual contributor for many years and is struggling to master the management skills typically displayed by Achievers.

The problems that society is currently facing, such as the QAnon conspiracy theory, rising levels of populism, and extreme polarization, can also be viewed through a developmental lens. Testing of the general population has revealed that approximately *fifteen* percent of adults are operating at the Conformist level or lower and are therefore particularly vulnerable to ideological possession. Furthermore, another sixty-five percent of the population is operating at the Expert or Achiever levels, which means that they are incapable of fully appreciating the diversity of perspectives available in the modern world, like Individualists, and therefore will have difficulty addressing political polarization without external guidance. Less than one in five individuals is operating at the Individualist level or higher and therefore empowered to navigate our increasingly cosmopolitan society with adequate proficiency.

The implications of these accumulated insights are profound. From a historical perspective, the mindless bloodshed of the World Wars, the Crusades, and other catastrophic conflicts can likely be attributed to a population largely stuck in the Conformist stage, without access to the information made more freely available through progressive technological innovation and the creation of the public school system. It is notable, for example, that the first war to be televised in the United States - the Vietnam War - was also the first war to be met with widespread resistance on the home front, and also coincided with the explosion in access to higher education in the second half of the twentieth century. Furthermore, the connective and informative properties of radio and television facilitated an international consciousness-raising that eventually drove the countercultural and justice-oriented movements of the 1960s.

Furthermore, it seems as though some of society's most pressing problems, which have emerged in response to a more connected, diverse, and information-rich world, are developmental in nature and are the result of mental models unequipped to handle the types of problems presented by our brave new world. This suggests that a review of the educational curriculum is in order, at the very least, as the demands being placed on people today have clearly outstripped the boundaries of their preparation in school (Kegan 1994, Strong 2021a).

Perhaps one of the thorniest social issues faced in the modern day is what ought to be done about the internet and the free flow of peer-to-peer information it has enabled. As previously discussed, the proliferation of information sources and the bewildering array of seemingly-viable perspectives now available have left many people confused, unbalanced, frustrated, or radicalized. When seen through a developmental lens, the various forces at play in Western society become more easily understood. For example, the Proud Boys and Antifa in the United States, the Yellow Vests in France, and people under the spell of social media influencers are likely operating from a Conformist mindset and are ideologically

possessed as a result of their inability to adjust. Even the population-at-large, consisting mostly of Experts and Achievers, have found themselves frustrated and confused by a world now suited for postconventional thinkers, and increasingly resort to the use of "experts" and "fact-checkers" to buttress their meaning-making processes. The subject matter authorities and fact-checkers that one chooses, however, determines one's opinion on events: this need for externally-provided coherence in a cosmopolitan world is a feature of "conventional" stages and therefore a developmental issue in disguise.

VIII. SCAFFOLDS

At this point, it may be helpful to invent a new metaphor that can capture the essential characteristics of the mental modelling process outlined in this paper, which is both linguistic and developmental in nature. Whereas previous scholars have used terms like "map" (Peterson 1999) or "lexical field" (Jaynes 1976) to describe the substance or form of these models, it is proposed that the models constructed and maintained by human beings over the course of their lives be referred to as "scaffolds".

This term is not entirely original. It has four influences of note: first, the term is well-known in the field of education and stems from Lev Vygotsky's "zone of proximal development" (Van Der Stuyf 2002). In Vygotsky's theory, the zone of proximal development consists of what learners are able to accomplish with assistance, as opposed to what they can do entirely on their own. In this situation, the educator is said to provide "scaffolding" to the learner, much in the way construction workers would build a temporary scaffold to aid in the completion of a standalone building. Outside of an educational context, it could be said that people who acquire information from outside sources and incorporate it into their mental models are constructing their own scaffolds to help them navigate an otherwise unintelligible world. An example of this might be a young entrepreneur reading a book about sales and then employing strategies from that book in their work, or people taking cues from others about how to act in unfamiliar situations. One researcher has even referred to proactive information-seeking activity in the face of novelty as "self-scaffolding" (Bickard 1992).

The second influence comes from ego development theory, which is also called vertical development theory by some researchers and practitioners (Petrie 2015). Here, the vertically-oriented nature of physical scaffolds fits particularly nicely with the type of development described in much of the literature, as each successive ego stage is said to encompass, or build upon, the insights of the last. In this way, one can imagine that someone farther along the EDT continuum will have more "layers" to their mental model, much like scaffolds are built level by level. In this way, the vertical dimension afforded by the scaffolding metaphor facilitates the conceptualization of mental models in terms of their level of sophistication in ways that the "map" or "field" metaphor cannot.

Third, this metaphor is inspired by the qualities of physical scaffolds themselves. Although health and safety regulations in many parts of the world have greatly improved worker safety, by their very nature scaffolding is provisional and unstable compared to an actual building. It is also modular and can be assembled and disassembled over time. Indeed, much like their physical counterparts, mental scaffolds are amassed from a kaleidoscope of influencers, thought leaders, and media sources, and are therefore shaky, temporary, and subject to change.

Fourth and finally, scaffolds are ultimately a building metaphor, and therefore concordant with the "ideas as buildings" metaphor prevalent in Western culture (Lakoff & Johnson 1980). In our language, ideas are often spoken of as structures: there is a "foundation" or a

"core" of an idea, arguments are "strong" or "weak", can be "buttressed", can "collapse" or "fall apart", one idea might "build upon" another, and so on. Talking about mental models as buildings is something that we are largely used to, and developing this metaphor further will likely facilitate more effective communication about this complex psychological topic.

When viewed in this way, mental models and their development become much easier to discuss. The case of the young professional promoted to a managerial role becomes a case of a well-developed scaffold at the Expert level being forced to rapidly assemble new ways of thinking at a higher, more complex level. Ideological possession becomes the adoption of a sophisticated multi-level scaffold that can interface with reality at a number of different developmental stages, providing a means of interaction and the illusion of completeness. Corporate mentorship, coaching, and training activities - particularly workshops in "systems thinking" or "innovation" - can be seen as scaffold-building endeavours meant to prepare employees for contemporary economic challenges. To the extent that the new information acquired reflects reality, the scaffold is a sound addition to the mental model; to the extent that it is not, it is shaky and liable to collapse when stressed or challenged.

It may be helpful to emphasize that the substance of these scaffolds is language. Particularly in the earlier stages of development, such as the pre-Conformist and Conformist stages in EDT, the scaffolds that people develop are largely informed by the enculturation and education processes they are subjected to, which is effectively a vast number of concepts, ideas, and commands that constitute the cultural commons and are encoded and propagated by way of language. As people enter adulthood and become independent, they become largely the masters of their own journey, and add things to their scaffold based on what they find on the job, from the media they consume, or while seeking out external help for their problems. And, as EDT researchers have found, as people reach new stages of development, their language patterns change in subtle ways to reflect their new ways of making meaning.

This metaphor also conveniently gives language to a persistent phenomenon that has been observed by researchers in EDT involved in assessing peoples' stages of development. In some cases, people who score at postconventional levels on the tests experience great difficulty embodying the ideas in practice. It is suggested that in these cases, intellectually gifted people have been able to acquire sophisticated language patterns before being able to fully put those ideas into practice, thus building a fragile-yet-tall scaffold that "looks" impressive yet crumbles under stress.

VIIII. POSSIBLE SOLUTIONS

Although the literature on ego development theory provides valuable new ways of conceptualizing the issues at hand, it also illuminates a path towards viable solutions. In the literature, the challenges that people experience which are outside of their current comprehension are called "heat experiences", and actually represent developmental opportunities (Petrie 2015). Indeed, the experiences we have that disrupt our current ways of thinking create the conditions for new ways of meaning-making to be developed, if external guidance and exposure to new information are provided along with the challenge.

Given this reality, it can be argued that society is currently facing a number of misinformation-related crises as the result of an innumerable multitude of missed or corrupted learning opportunities. People log on to social media and encounter a world that is simultaneously polarized and cosmopolitan, and are merely offered partisan media and biased "facts" to

buttress their mental model. Executive coaching and therapy, both of which provide access to advanced ways of meaning-making for their clients, are prohibitively expensive and therefore difficult to access. Parents, who grew up in a simpler world without many of these problems, are unable to provide the scaffolds that their children require, creating a cascading and self-perpetuating issue. Finally, the school systems, which should have been addressing emerging educational needs proactively, have largely been navel-gazing and frittering away their time on fringe matters (Strong 2021a). It is no surprise that so many people's mental models have become corrupted as a result of this ecosystem.

Given the developments in technology and society over the past three decades and the irrevocable changes they have wrought, it has become necessary to think beyond the "conventional" paradigm in terms of education and human development in the West. Elements of postconventional thinking, such as systems understanding and inquiry from multiple perspectives, will have to find their place in the curriculum. Educators will have to be made aware of the powerful ideas contained in EDT and the implications that this has for their practice, especially at the secondary level. Eventually, everyone will need to be given access to the meaning-making tools available at postconventional levels if they are to have a fair shot in the modern world.

This process has already begun in the executive coaching world, where organizations like Coaches Rising and Leadership Circle are sharing and deploying the ideas in the EDT literature to positive effect. It seems logical that career services professionals would also be able to use these ideas, as such professionals are employed by many school boards and universities and are freer to adjust their methodology than curriculum-focused teaching staff. Additionally, the process of career discovery often entails a process of self-discovery, which makes career counselling a likely avenue to help people develop a "postconventional" sense of self that can withstand the challenges of the modern labour market and protect them from falling prey to a polarizing media landscape.

Given the close relationship between thought and language that exists, it also seems safe to assume that language-based solutions will serve to refine one's thoughts. The current evidence suggests that writing exercises, particularly guided writing exercises that focus attention on specific aspects of one's mental model, can lead to benefits for mental well-being, physical well-being, academic performance, and life satisfaction (Cohen & Sherman 2014, Schippers et al. 2015). Such tools must be refined, adjusted to reflect EDT principles, and made as accessible as possible.

Additionally, the methods of testing someone's level of ego development must be adapted. Current methods of assessment are exacting and time-intensive to complete: although such assessments certainly have their place, rough measures that can differentiate between preconventional, conventional, and postconventional thinking would be of great benefit in educational and corporate settings, where high-potentials often receive additional attention and resources to further accelerate their development. It is arguable that in the same way that "intellectual giftedness" is an asset worth testing for in the early grades, signs of developmental maturity in young people should be seen as important indicators of potential for educators and human development professionals.

Finally, solutions informed by ego development theory could be designed and deployed to prevent or ameliorate intellectual possession. The key to solving this type of problem is to understand that once someone adopts a sophisticated ideological scaffold, they will have ready-made responses for almost anything people say to them. Therefore, instead of attempting to force them

to change their mental model through debate and argument, it may be more helpful to help them to make that model more explicit so that they can take perspective on it. For example, in the case of QAnon believers, getting them to elucidate exactly what they believe will happen in the future and why may help them gain perspective on what they hold to be true, and will provoke internal reflection when their sources prove to be unreliable. Getting such people to speak about *why* they believe something will happen, or the details surrounding the event, will further crystallize their mental model and help them to take perspective on it: essentially, they need to be given the space and the safety to prove themselves wrong. Such a strategy could be applied to anybody in the grip of a set of ideas.

In a proactive sense, giving people scaffolds through community education activities that provide explicit defenses against ideological possession could prevent radicalization from even happening: in many ways, this is already being done by practitioners working on intuition and with their own vocabularies for the issues.

X. THE NECESSITY OF FAITH

A discussion of scaffolding, mental models, and inherited ideas would not be complete without mentioning perhaps the greatest scaffolds currently in existence: organized religions. From East to West, the great religions of the world offer elaborate moral codes and systems of meaning-making that pertain to every aspect of a believer's life. In the West, Christianity's influence on the moral and psychological structure of society cannot be understated, and the progressive rejection of such structures following Darwin's discoveries has coincided with a rise in nihilism, despair, and conflict (Peterson 1999). Additionally, the apparent incompatibility of scientific and religious worldviews has spawned a wealth of literature about the relative value of faith and reason that stretches back to the Enlightenment, leaving many people fundamentally confused about what is "true" and how they should engage with the world.

Given the totalizing nature of religions such as Christianity, the problematic history of the religion, and the many societal challenges posed by the Evangelical Christian worldview, many in the West now associate the concept of "faith" with a blind belief in an ancient document or the unquestioning acceptance of dogma. However, nothing could be further from the truth: in the English dictionary, faith is characterized as "trust" or "confidence", and this characterization even holds in a Christian sense, as the Biblical Greek word for faith, *pisteuo*, has connotations of trust and confidence in something.

In some cases, faith can certainly refer to an unquestioned or naive belief. But in many others, it means to be genuinely persuaded of something, or to have trust in someone based on a solid track record of interaction. Seen in this way, faith is not a negative character trait - it is a necessity of life in a world full of uncertainty. Although secularly-minded Westerners may scoff at the mere mention of faith, the vast majority of the Western world just consented to a mass vaccination campaign using a new type of genetic technology, largely on the basis of their trust - or faith - in the medical and scientific institutions offering those treatments. Remarkably, they did so without knowing the three-year, five-year, or ten-year effects of the injections, which in many ways constitutes an even bigger leap of faith than is asked of many religious converts.

It would therefore seem that faith is an inescapable part of living in a complex world, especially when it is impossible to become an expert on every issue that one cares about. Whether one places one's trust in the Church, in science, in the government, or in another belief system entirely, one is still choosing to have faith in something. Furthermore, such choices are inescapable - even fundamental

civic actions like choosing a candidate at the ballot box or placing one's child in school become, in part, acts of faith that are justified either by independent research and the historical performance of the candidate or institution in question.

From the perspective of ego development and mental modelling, to have "faith" means to have consciously adopted a scaffold that extends beyond one's current level of meaning-making with the expectation that the scaffold will prove to correspond to reality. In the context of Vygotsky's zone of proximal development, where someone is learning something new, and in ego development, where someone is moving from one stage of development to the other, they must rely on an external source of guidance in order to progress. This strongly suggests that faith is a necessary component of human development, rather than a negative character trait.

Although we are not used to speaking like this in the West, it would seem like one of the most important things in life may be the allocation of one's faith. In a world that is impossible for any individual to fully comprehend, the information sources, spiritual influences, and advice that one uses to make sense of things must be carefully chosen, as these have downstream effects on thought, emotion, and action. Furthermore, the instruction of young children must be undertaken with special care, as the development of the lower levels of someone's scaffold affects the construction of the "upper layers".

Ultimately, the construction of a sophisticated mental model is a lifelong affair and a task of the utmost importance for survival and flourishing in the modern world. Although it may be a laborious process, achieving higher levels of development brings with it the ability to be a more effective guide to others and take part in the ongoing project of consciousness-raising that has been part of the human experience for thousands of years. Given the current social situation in the Western world, it seems like universal enlightenment can't come soon enough.

REFERENCES

Albrechtsen, J.S., Meissner, C.A., Susa, K.J., “Can intuition improve deception detection performance?”, Journal of Experimental Social Psychology (2009)

Almendros, C., Carrobles, J.A., Rodríguez-Carballeira, A., “Former Members’ Perceptions of Cult Involvement”, Cultic Studies Review (2007)

Bickard, M., “Scaffolding and self-scaffolding: Central aspects of development.”, Children's Development Within Social Context: Research and methodology (1992)

Bloom, P., Kiel, F.C., “Thinking Through Language”, Mind & Language (2001)

Booth, N., Matic, J.A., “Mapping and leveraging influencers in social media to shape corporate brand perceptions”, Corporate Communications (2011)

Chiarello, C., Beeman, M., “Introduction to the Cognitive Neuroscience of Right Hemisphere Language Comprehension”, Right Hemisphere Language Comprehension (1998)

Cohen, G.L., Sherman, D.K., “The Psychology of Change: Self-Affirmation and Social Psychological Intervention”, Annual Review of Psychology (2014)

Cook-Greuter, S.R., “Postautonomous Ego Development: A Study of Its Nature and Measurement”, Integral Publishers (1999/2010)

Cook-Greuter, S.R., “Nine Levels Of Increasing Embrace In Ego Development: A Full-Spectrum Theory Of Vertical Growth And Meaning Making” (2013)

Crider, D,, “‘Great Sounds and Wonderfulness’: KMPX and the Birth of Freeform Radio”, Journal of Radio & Audio Media (2020)

Delgado, R., Stefanic, J., “Critical Race Theory” (1995)

Erikson, E., “Identity and the Life Cycle”, W.W Norton (1994)

Garimella, V.R.K., Weber, I., “A Long-Term Analysis of Polarization on Twitter”, Proceedings of the Eleventh International AAAI Conference on Web and Social Media (2017)

Godin, S., “Tribes: We Need You to Lead Us”, Portfolio (2008)

Gopnik, A., “The Gardener and the Carpenter: What the New Science of Child Development Tells Us About the Relationship Between Parents and Children”, Farrar, Strauss, and Giroux (2016)

Hayek, F.A., “The Intellectuals and Socialism”, The University of Chicago Law Review (1949)

Howard, P., Duffy, A., Freelon, D., Hussain, M., Mari, W., Mazaid, M., “Opening Closed Regimes: What Was The Role of Social Media During the Arab Spring?” (2011)

Hurlburt, R.T., Akhter, S.A., “Unsymbolized thinking”, Consciousness & Cognition (2008)

Jaynes, J., “The Origin of Consciousness in the Breakdown of the Bicameral Mind”, Houghton Mifflin, Mariner Books (1976)

Kegan, R., “In Over Our Heads: The Mental Demands of Modern Life”, Harvard University Press (1994)

Kelly, K., “The Inevitable: Understanding the 12 Technological Forces That Will Shape Our Future”, Penguin Books (2016)

Koehler, D., “Daniel Koehler: The Radical Online: Individual Radicalization Processes and the Role of the Internet”, Journal for Deradicalization (2014)

Lahey, L., Souvaine, E., Kegan, R., “A Guide to the Subject-Object Interview: Its Administration and Interpretation”, Minds at Work (2011)

Lakoff, G., Johnson, M., “Metaphors We Live By”, The University of Chicago Press (1980)

Land, J., “Pacifica’s WBAI: Free radio and the claims of community”, Jump Cut no. 41 (May 1997)

Levinson, S., “Language and Space”, The Annual Review of Anthropology (1996)

Manners, J., Durkin, K., Nesdale, A., “Promoting Advanced Ego Development Among Adults”, Journal of Adult Development (2004)

McLuhan, M., “Understanding Media: The Extensions of Man”, McGraw-Hill (1964)

Milgram, S., “Behavioral Study of obedience”, The Journal of Abnormal and Social Psychology (1963)

Miller, A., “The Drama of the Gifted Child”, Basic Books (1979)

Moskalenko, S., McCauley, C., “QAnon”, Perspectives on Terrorism (2021)

Newman, J.H., “The Idea of the University” (1852)

Peterson, J.B., “Maps of Meaning: The Architecture of Belief”, Routledge (1999)

Petrie, N., “The How-To of Vertical Leadership Development”, Center for Creative Leadership (2015)

Piaget, J., “Development and Learning”, address at Center for Genetic Epistemology (1964)

Rooke, D., Torbert, W.R., “Seven Transformations of Leadership”, Harvard Business Review (2005)

Schippers, M., Scheepers, A., Peterson, J.B., “A scalable goal-setting intervention closes both the gender and ethnic minority achievement gap”, Palgrave Communications (2015)

Strong, Z., “Micro-Universities” (2021a)

Strong, Z., “The Bicameral Expert” (2021b)

Taleb, N.N., “Skin In The Game: Hidden Asymmetries in Daily Life”, Random House (2017)

Van Der Stuyf, R.R., “Scaffolding as a Teaching Strategy” (2002)

Vyshedskiy, A., Mahapatra, S., Dunn, R., “Linguistically deprived children: meta-analysis of published research underlines the importance of early syntactic language use for normal brain development”, Research Ideas and Outcomes 3 (2017)

HELPFUL QUOTES

[i] **K. Kelly, "The Inevitable: Understanding the 12 Technological Forces That Will Shape Our Future" (2016)**
"Ironically, in an age of instant global connection, my certainty about anything has decreased. Rather than receiving truth from an authority, I am reduced to assembling my own certainty from the liquid stream of facts flowing through the web. Truth, with a capital T, becomes truths, plural. I have to sort the truths not just about things I care about, but about anything I touch, including areas about which I can't possibly have any direct knowledge. That means that in general I have to constantly question what I think I know. We might consider this state perfect for the advancement of science, but it also means that I am more likely to have my mind changed for incorrect reasons. While hooked into the network of networks I feel like I am a network myself, trying to achieve reliability from unreliable parts. And in my quest to assemble truths from half-truths, nontruths, and some noble truths scattered in the flux, I find my mind attracted to fluid ways of thinking (scenarios, provisional belief, subjective hunches) and toward fluid media like mashups, twitterese, and search."

[ii] **J. Jaynes, "The Origin of Consciousness in the Breakdown of the Bicameral Mind" (1976)**
"A most important 'feature' of this metaphor 'world' is the metaphor we have of ourselves, the analog 'I', which can 'move about' vicarially in our 'imagination', 'doing' things that we are not actually doing. There are of course many uses for such an analog 'I'. We imagine 'ourselves' 'doing' this or that, and thus 'make' decisions on the basis of imagined 'out-comes' that would be impossible if we did not have an imagined 'self' behaving in an imagined 'world'. In the example in the section on spatialization, it was not your physical behavioral self that was trying to 'see' where my theory 'fits' into the array of alternative theories. It was your analog 'I'. If we are out walking, and two roads diverge in a wood, and we know that one of them comes back to our destination after a much more circuitous route, we can 'traverse' that longer route with our analog 'I' to see if its vistas and ponds are worth the longer time it will take. Without consciousness with its vicarial analog 'I', we could not do this."

[iii] **J.B. Peterson, "Maps of Meaning: The Architecture of Belief" (1999)**
"Along with our animal cousins, we devote ourselves to fundamentals: will this (new) thing eat me? Can I eat it? Will it chase me? Should I chase it? Can I make love to it? We model facts – there is no doubt about that. But we model facts to keep track of meaning. We may model facts, and it is no doubt useful to do so. We must model meanings, however, in order to survive. Our most fundamental maps of experience – maps which have a narrative structure – portray the motivational value of our current state, conceived of in contrast to a hypothetical ideal, accompanied by plans of action, which are our pragmatic notions about how to get what we want."