Why do people persist in embracing non-adaptive architectural and urban typologies?

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Abstract: Explaining the persistence of non-adaptive architectural typologies reveals the opposite of what one is led to believe about progress in contemporary architecture and urbanism. There is in fact a built-in resistance to new ideas outside conformity, even when accepted practices are demonstrated to be failures. We can understand this contradiction as irrational groupthink and the resistance to change within the framework of social learning and evolutionary adaptation. Studies in political science and psychology reveal strongly innate mechanisms for preserving misinformation. Human physiology leads intelligent persons who have acquired demonstrably false beliefs to stubbornly persist in holding them. “Cognitive dissonance” is a state of physical anxiety, and instinctive defensive reactions are meant to counteract its occurrence. Methods of handling contradictory information within settings requiring urgent action, while obviously appropriate at the evolutionary level of early humans, wreak havoc with our present-day rationality. People have inherited both a mechanism for conforming to group beliefs, and a stock of tools to fight against any idea that conflicts with already held beliefs. Rational arguments have no affect whatsoever.

Introduction.

Is today’s consumerist society headed for collapse because of its exponentially growing, hence unsustainable needs? Despite numerous arguments that urge us to change the catastrophic global waste of natural resources, energy, and agricultural regions, losing the diversity of the biosphere, etc., it is frustrating to find that inertia overrides logic and reason (Max-Neef, 2010; Wilson, 2006). One could apply the same explanation to the continued universal embrace of non-adaptive architectural and urban typologies, exemplified in the promotion of a group of famous architects who build more or less the same non-adaptive buildings (Salingaros, 2008). Whereas rampant global consumerism is based upon misinformation, less widely known is that the way we design and build our cities violates the principles of human-scale architecture and urbanism. Society promotes irrational ideologies and appears resistant to arguments because people hold irrational beliefs in the face of logical evidence to the contrary.
This paper summarizes some results from political science and psychology suggesting that groupthink and resistance to rationality are part of an evolutionary adaptation. And yet, what made for an advantage in a tribal early human society is most probably leading us towards extinction. There exist mental mechanisms whereby people get induced into groupthink and adopt irrational and false ideas. Instinctive responses become techniques human beings normally use to fight against education and rational arguments: the tools intelligent people employ to avoid revising their demonstrably false beliefs. Anyone who wishes to implement social change in society for the better must overcome these obstacles.

“Cognitive dissonance” occurs when a person is faced with two contradictory and incompatible thoughts (Tavris & Aronson, 2007). This state generates emotional tension and anxiety, and can lead to paralysis in action because the decision mechanism cannot resolve the conflict and decide upon any proper course to take. Clearly, this is a very dangerous state to be in, and human beings must avoid getting locked into a state of indecision (analogous to a computer program freezing up). Situations where this conflict arises are usually social ones, when others hold an opinion contrary to one’s own. If one has to decide alone, there is usually less conflict among irreconcilable ideas. Apparently, nature predisposes us to accept a decision conforming to what the majority of a group believes. Recent work on this topic posits a biological/social co-evolution that hard-wired us with a mechanism favoring conformity to the group (Richerson & Boyd, 2005). Social evolution creates the mechanism for groupthink.

The unavoidable tendency to conform easily overrides both rational behavior and moral inhibitions. Evidence demonstrates again and again how normal persons ignore their sensory apparatus to trust a false piece of information only because it is the accepted group opinion. In laboratory experiments reviewed here, people were led to abandon their own direct perception of phenomena, and to instead adopt a (deliberately false) groupthink opinion. In a related experiment, normal students were turned into sadistic prison guards (the Stanford Prison experiment). The present paper concludes with Thomas Kuhn’s review of paradigm shifts in science, which can now be interpreted as just another sudden change of group opinion. Thus, in science, where one expects rational and intelligent behavior, the acceptance of new theories is just as problematic and is delayed by group conformity, exactly like the same phenomenon occurring in ordinary society.

Stubborn and non-correcting behaviors have of course been documented throughout history, though this has not made the slightest difference to their continued misapplication. For example, Friedrich Nietzsche cynically and perceptively observed: “Men believe in the truth of anything so long as they see that others strongly believe it is true” (Friedman, 2003). These results indicate the validity of the old saying “might makes right”, in the sense that majority opinion overrides verifiable truth. The added surprise is that human beings are hard-wired to conform to group opinion, even if that opinion is based upon misinformation. Implementing change through education is therefore unlikely to occur within a majority system, because the social setting guarantees conformity of thought.
Stage one: conforming to group belief.

Solomon Asch (Asch, 2003; 2004) showed in a classic series of experiments that a person is ready to mistrust his or her own perceptual apparatus and to instead adopt a false belief because of peer pressure. In one experiment, subjects were consistently misled by biased group opinion and reported the wrong relative length of a line. People thus accept the majority opinion regardless. Conformity to group belief is stronger than one’s own sensory apparatus. Granted, in these experiments, the rest of the “group” was selected and instructed to deliberately mislead the subject, but the relative length of the lines the subjects were asked to measure was obvious to anyone. Stanley Milgram performed distinct experiments that confirmed this conformity effect (Milgram, 1961), and a more advanced setting later extended the original results (Berns et. al., 2005).

As an example of conforming behavior, though not belief, recall how susceptible everyone is to canned laughter in television shows. This particular social trigger of conformity to group action is universally despised, yet omnipresent. The reason for its persistence is that psychological studies confirm the effect to be contagious (Cialdini, 1993). Viewers simply cannot resist being influenced, even though canned laughter is both obvious and silly. In terms of audience manipulation, it is found that the worse (i.e. flat and unintelligent) the joke is the more canned laughter helps to make it work. Television executives therefore habitually override a director’s and actors’ requests not to include canned laughter in their theatrical masterpiece.

Numerous studies where pretend pollsters got perfectly straight answers to fictitious questions emphasize how perceived authority and the urge to conform validate misinformation. Students happily answered questions about nonexistent places; nonexistent legislation; nonexistent political figures; and even gave directions to fictitious locations (Prasad et. al., 2009). The responders mistook the act of asking questions by some presumed authority (the pretend pollsters showing all the right signals of legitimacy) as proof that the topics they were questioned about really existed. Responders went further to invent fantastical explanations so as to avoid looking ignorant and thus external to the “group” by not sharing its common knowledge. In another study, adults were asked to remember details about a medical skin test performed while at school (Mazzoni & Memon, 2003). Even though there was never such a test, the subjects invented a detailed, convincing recollection of the fictitious event.

Boyd and Richerson (Richerson & Boyd, 2005) argue that forms of groupthink and ideological conformity were very useful in forming early human societies. Conformist transmission in social learning is strongly favored in natural selection. Even if an actual belief is wrong, it matters more for the survival of the group if it holds itself together during the time required to reach a collective decision, thus conformity is one very powerful factor in survival. By contrast, internal dissention within a group over conflicting ideas weakens the group’s solidarity and purpose. An indecisive situation proves disadvantageous to the group in making short-range
decisions, such as in emergencies and fighting competing groups. We don’t have to look very far for historical examples where internal bickering when the enemy was at the city gates allowed an invasion that could have been prevented had the population shown more solidarity.

Conformity to a common ideology is certainly good for fighting off an invading army or another tribe competing for the same territory and resources. Even in early civilization with a small population, however, adoption of false beliefs may lead to extinction, and we see this in the archaeological record. Societies drove themselves to collapse by holding onto false beliefs about the natural environment upon which they depended, deforesting and denuding agricultural land, losing their productive soil to erosion, polluting their only water sources, etc. (Diamond, 2005). These drawbacks arise on an entirely longer time scale than the immediate one of quick decision-making. Our knowledge of whether any dissenting voices proposed more rational solutions and practices in a society headed for extinction is non-existent. Those societies drove themselves to collapse by following groupthink and conforming to destructive beliefs right to the very end (Diamond, 2005).

**Truth is what the majority group decides it to be.**

George Orwell’s original and frightening conclusion is that society promotes groupthink, which forces people to accept misinformation as truth (Orwell, 1949). Validation of an idea or set of ideas is based upon whether those are accepted by the majority: a deceptive parallel to democratic governance. Orwell described a totalitarian regime, but we now know that this conformity mechanism applies just as well to a democratic society. Once misinformation has been accepted by the majority, it is almost impossible to correct it in the public consciousness. This syndrome is not supposed to occur in an educated democracy, yet it does.

The advertising industry flourishes in democracies, where its primary goal is to misinform people so that they will consume a product. Some of the massively advertized products do what they claim to do, yet a large number of them are either of marginal value or are actually pathogenic. The global consumerist system promotes many products of doubtful benefit that replace more worthy local products, and this unfair competition (because the global companies are linked into an economic power structure) kills regional industries. Specifically, the linked examples of interest in this paper — unsustainable consumerism, and its global non-adaptive architecture — are promoted using all the massive power of the global media. These represent crucial industries for global industrialization (though they are certainly not the only examples).

Two related mechanisms influence people to accept misinformation as truth: passive conformity to majority beliefs; and deliberate falsehood promoted by a system of authority in order to further its ends. The first, instinctive mechanism of conformity is seemingly innocuous and is not amenable to human control. Passive conformity simply occurs because of human nature. Investigating the propaganda and conditioning apparatus employed by systems of authority to deliberately spread
misinformation requires a separate study (Hoffer, 1951; Salingaros, 2008). Many individuals try to promote irrational beliefs so as to gain control of a group of people. We have examples in cults, dangerous sects, extremist political movements, etc. However innocuous the advertising industry may appear to be compared to a totalitarian regime coming to and holding power, the same techniques of persuasion are used to sell fatburgers and soft drinks laden with synthetic fructose.

**Stage two: six tactics in a strategy for resisting the truth.**

Educating people who are stuck with irrational beliefs has been a problem since the beginning of recorded history. De-programming somehow has to overcome avoidance techniques that people utilize to block input that could change their ideas. Cognitive dissonance arises when external information contradicts an already held belief. The way we normally deal with this is NOT to rationally compare two competing theses and resolve conflicts using reason and available evidence. Rather, we react in the same way we react to a physical threat. We instinctively fight against information that threatens our beliefs, inventing any means of defense possible. This strategy has nothing to do with rationality or truth: it simply implements a toolbox of protective mechanisms. We normally accept information only if it reinforces beliefs already held, and we reject information that conflicts with something we already believe (Nickerson, 1998).

This behavior has been analyzed in political science. It was documented that once voters adopt a political position for whatever reason, they then invent spurious “facts” to rationalize their existing opinion (Achen & Bartels, 2006; Lehrer, 2009). “Voters tend to assimilate only those facts that confirm what they already believe” (Lehrer, 2009) ... “inventing facts or ignoring facts so that they can rationalize decisions they’ve already made” (Achen & Bartels, 2006). The experimental evidence emphatically does not support the traditional picture of a healthy political process, in which issues and candidates are intelligently compared and evaluated.

A recent paper on the sociology of political beliefs (Prasad et al., 2009) lists techniques that people use to prevent cognitive dissonance, extending another earlier list (Zuwerink-Jacks & Cameron, 2003). [I have combined the two lists and changed some of their labels; the original labels are given below in brackets. I will pay special attention to defensive techniques developed in the animal kingdom that, in addition to lending colorful labels, reveal the biological analogy of these tactics. These animal analogies suggest that the methods of blocking rational arguments, although requiring human reasoning applied towards an illogical end, basically work on a pre-human level. Only the last one is uniquely human as far as I can tell.]

**The six blocking tactics:**

1. TUNING OUT — the “Ostrich” technique.

2. SOURCE DEROGATION — the “Rhinoceros” technique.
3. DISPLACEMENT — the “Eel” technique.
4. IRRATIONAL COUNTERARGUING — the “Squid” technique.
5. SELECTIVE SUPPORT — the “Lizard” technique.
6. INFERRED JUSTIFICATION — the “Self-justifying Prosecutor” technique.

These six techniques are used for rejecting a rational result when it contradicts misinformation already held by a person. The defensive animal behaviors alluded to are summarized here: 1) A popular myth is that the Ostrich reacts to threats by digging a hole and hiding its head in the sand (in fact, the Ostrich lies down to look like a lump). 2) When annoyed or threatened in any way, the Rhinoceros just puts its head down and charges the source of annoyance. 3) The skin of an Eel is covered by slimy mucus so that when someone tries to catch one, it slips out of grasp. 4) The Squid frustrates its predators by releasing a cloud of ink in the water, making it impossible to see anything and facilitating its escape. 5) The Lizard drops its still-wiggling tail to divert attention elsewhere while it escapes.

1. Tuning Out (Selective exposure) occurs when you — the questioner — are talking to a person — the subject — and present evidence that his or her beliefs about a topic are wrong. Cognitive dissonance creates a high state of stress, which is unpleasant, so the subject responds by blocking what is being said. A common physiological response is to just tune out both the message and the channel of communication, and stare back with a blank look. There is consequently no further engagement with the questioner.

2. Source Derogation involves attacking the questioner while ignoring the question. This action could range from politely disputing the interlocutor’s credentials and expertise, to implying a corrupt or dishonest motive (i.e. a deliberate ploy), to outright insults and violence. The questioner could be accused of being brainwashed, even though the subject is more likely to be so in this instance. Any pretext that can justify a personal attack on the questioner is useful. An imagined social, religious, or racial difference between the questioner and subject can be brought up in a classic prejudicial attack: for example, the questioner is accused of being fascist, totalitarian, communist, anarchist, etc.

3. Displacement (Disputing rationality) is a response that engages at some minimal level, but the response is founded upon irrationality. The person holding the false belief answers that the issue does not depend upon facts, but is instead purely a matter of opinion. Supposedly, any rational discussion is extraneous to the topic; hence logical argument would be futile. There is therefore engagement but no analysis. The existing false belief is maintained intact and free of any threat from revision because it has been displaced into the realm of opinion (at least as far as the subject is concerned).
4. **Irrational Counterarguing** (Counterarguing) offers evidence that presumably refutes what the questioner is claiming. The problem here is that the subject is arguing in support of an irrational belief against the questioner’s competing rational belief backed by logic and facts. If the basis for arguing is logic and rationality, then the issue could be settled very quickly, but that is never the case. The strategy’s goal is to retain the false belief, not to allow it to be questioned. In protecting the irrational belief, the subject who holds such a belief is forced to introduce irrational or irrelevant arguments. It is impossible to produce a coherent logic to defend an irrational held belief.

5. **Selective Support** (Attitude bolstering) is a method of ignoring the evidence presented against a false belief, and instead bringing in other peripheral pieces of information that might seem to support the false belief. Here the subject tries to build up a tangential logical edifice for supporting his or her false belief by skirting around the main logical objections to the belief itself, employing a diversionary tactic. There is no direct engagement on the fundamental issue, only clever side-stepping.

6. **Inferred Justification** involves believing misinformation because it is accepted by authority and/or by the group majority. No rational reason is needed for this initial acceptance of misinformation, just groupthink. What happens next is crucial, however: the subject’s brain evolves circuits to create a seemingly rational explanation after the fact. Once that stage has been accomplished, then to the subject holding the false belief, any thought on the topic appears natural and obviously true. The questioner is answered by saying that the consequences of this false belief (which may be substantial and even catastrophic) actually justify the belief itself. Of course this thought process follows a perverted inverse logic. The subject assembles a fictitious backwards chain of reasoning to justify the final piece of misinformation.

The colorful label (“Self-justifying Prosecutor” technique) proposed for Inferred Justification referred to above is drawn from the criminal justice system. Researchers documented the refusal of judges, prosecuting attorneys, detectives, and police officers to admit to error after a conviction was later reversed through DNA evidence (Tavris & Aronson, 2007). It is very common for the involved parties in the system to stubbornly dismiss the DNA testing and to reinterpret the old evidence so as to justify the original verdict, getting very angry with others in the same system who are re-opening cases already closed. The need for self-justification leads prosecutors to use an inverted logic by which if a person actually went to jail, or was executed, then this outcome in itself is sufficient to justify the process that led to that person’s conviction.

The physical, visceral, and emotional feeling of knowing something to be true (Lakoff & Johnson, 1999) is worth discussing. The neural path that stores a packet of knowledge in the brain (even if that knowledge is false) becomes part of someone’s physical being, and is henceforth associated with a precise emotion. After neural encoding, a piece of misinformation is registered as “true”, and any subsequent reference to that misinformation evokes the characteristic “true” physical and
emotional response. The subject is therefore hardly able to go against his or her bodily signals confirming that something is intuitively true, even in the face of rational evidence to the contrary. Reaction to having a basic belief questioned by another person can only be irrational, since it is based upon an emotional state generated by cognitive dissonance.

Another point has to do with the evolution of both complex neural circuits and software. When a piece of software, or a neural net evolves to “learn” something that is set as the goal of the exercise (i.e. to solve a particular task in the case of software code), the system goes through an evolutionary process involving many steps. Each step in the evolution of a neural circuit or genetic program generates many alternative choices via some random algorithm, and a selection process chooses the result that comes closer to satisfying the desired conditions. The end result is a circuit or program that does what it is supposed to do. Here the crucial feature is that evolved circuits and programs are very difficult if not impossible to understand, since they were not built rationally step-by-step (Hillis, 1998). One cannot analyze the process that generated them.

I conjecture that the same evolved neurological mechanism applies to the brain circuits that “grow” a spurious explanation for a particular piece of misinformation. Neither the subject nor anyone else can explain or make sense of the physical neural circuit encoding misinformation, because it was never grown logically. It evolved a posteriori, and no one can guess what associations in the subject’s brain were used to anchor it to the permanent memory. Nevertheless, a piece of assimilated misinformation FEELS true and it is definitely associated with the visceral emotion of something that is indeed true. Misinformation stored in this manner becomes embedded in a pre-human consciousness: it becomes intuitive, one’s “gut feeling”, something that cannot possibly be argued with logically or rationally. And here lies the great obstacle to learning once false beliefs have become embedded.

Some examples from the author’s experience.

The innate defensive strategy for maintaining misinformation explains the bizarre reactions I have come across when presenting my work on architecture and urbanism. In developing a theoretical basis for designing buildings and cities, I have had to fight against a profession that lacks a rigorous logical and rational basis, a curious anomaly indeed (Salingaros, 2005; 2006; 2008). My results inevitably contradict accepted twentieth-century visual typologies and models of what “good” architecture has come to mean. What is considered “good” is now defined in a circular manner by what is currently fashionable, and this illogical model is supported by a group of architects, architecture critics, architectural magazines, architecture prize boards, etc. Arguing against the establishment involves contradicting an organizational structure that has been formed by conforming to accepted images and a group belief system.

I have experienced and thus recognize all of the six blocking tactics listed previously. When talking to students, I often mention that some architectural or
urban typography is dysfunctional, and that a particular famous architect who applies it has made a serious mistake. A frequent response is Tuning Out. The student who has been socialized into unquestioningly accepting everything that famous architects do as valid — and as the highest possible example to aspire to — simply does not know what to do in this situation, hence tunes out. I notice a characteristic frightened look in the students’ eyes when this happens: this is a fight-or-flight response because they are desperate. I have observed this often, and every time it is disconcerting. These students were never prepared for the possibility that something they were taught as absolute truth may in fact be wrong. Their body reacts viscerally on a level much deeper than rational conversation.

When a similar thing occurs with a more senior architect or faculty member, however, the typical reactions are Displacement, Selective Support, or Irrational Counterarguing. I should mention that, frequently, practicing architects and architectural academics become hostile and belligerent, applying an extreme case of Source Derogation. This sometimes-violent response is explained in terms of their emotional unease due to the sudden onset of cognitive dissonance. Architects’ habitual position of authority within their closed society relies upon everyone else around them conforming, and thus their whole value system is threatened when someone questions it. I have also experienced Tuning Out with senior architects, and it has taken the form of rudely cutting off the dialogue.

In a large number of conversations and encounters with architects with whom I have debated the scientific basis of architecture, nothing is ever clarified because my interlocutors present irrelevant material to counter the results (Selective Support). A recurring strategy is to deny the very existence of a theoretical basis for architectural and urban design (dismissing all the published literature on the topic). This strategy ignores the scientific and experimental basis for architecture, claiming instead that this discovered body of knowledge is personal preference and thus not rational at all (Displacement). Those who actually try to question the scientific results that establish adaptive architectural design inevitably turn to politics and argue around the facts altogether (Selective Support). This tendency to use irrational counter-arguments in such debates (Irrational Counterarguing) leads architects to talk by going around in circles. But the desired result of protecting their false beliefs is achieved: the strategy defends accepted dogma from the threat of revision.

The disturbing reaction to questioning global consumerism tied to non-adaptive architecture and unsustainable city form approaches religious conviction. Surrounded by the products of an industrial aesthetic paradigm deceptively promoted as necessary for economic progress, common people assume that there MUST be inevitable and logical reasons why these unsustainable practices and non-adaptive built forms are all around us, but cannot articulate them (Inferred Justification). Surely trusted experts have decided that consumerism and alien-looking buildings are part of the natural evolution of humankind? It is INCONCEIVABLE that all of this could be based on misinformation and misunderstanding, let alone something as shallow as fashion. Is this simply a cult of
images? Architects are forced to justify their own profession, but are no better at explaining these contradictions.

Two recent books provide disappointing examples of failing to abandon misinformation despite one’s stated intent. In the first book, the authors (social activists promoting a more equitable urban future) passionately argue for a shared informational system and against the global consumerist system. But they then use images of non-adaptive architecture conforming to the worst that the global consumerist system is now promoting! They don’t see the contradiction. In the second book, the author develops logical arguments for an adaptive architecture on the human scale, but then illustrates the book with images of non-adaptive buildings that are again images promoted by the global architectural/economic consumerist system. The examples chosen conform to fashion and contradict the text. I can only interpret these examples of incongruity in terms of the tremendous difficulty of breaking away from conditioned images that are supported by misinformation. Those images are so deeply ingrained in one’s subconscious that they undermined the efforts of these well-meaning authors.

**Stage three: cognitive dissonance and the utopian fallacy.**

The human mind craves solutions but is challenged by complexity, and thus it would rather accept a simplistic cognitive *schema* that is a non-solution instead of having to tackle a complex problem directly. Clearly, something deep within the evolved human mind makes utopian proposals irresistibly attractive; possibly their promise of a clean and instant solution to a host of extremely complex problems. Utopia provides the lazy mind’s way out. The British philosopher Roger Scruton discusses the mindset of those who embrace utopian ideals, which henceforth determine a false but comforting view of the world. Following the Hungarian philosopher Aurel Kolnai, Scruton terms this syndrome “The Utopian Fallacy” (Scruton, 2010).

Unfortunately, those who accept a utopian worldview become blinded to reality. In keeping with what was presented in this paper, a true believer refuses to abandon a set of flawed beliefs, even in the face of evidence and proof. He or she is able to ignore both logical analysis and physiological input when those contradict an accepted ideology. Quoting from Kolnai and Scruton: “The utopian mind [is] shaped by a particular moral and metaphysical need, which leads to the acceptance of absurdities not in spite of their absurdity, but because of it... and its dreams are continually recycled as ‘solutions’ to problems that they themselves create... This ‘immunity to refutation’ is what I mean by the utopian fallacy.” (Scruton, 2010: pages 63-64).

Accepting beliefs in terms of obedience to a group, but going in the face of rationality (instead of using proven precedent as is justified, for example, in traditional religions) touches upon the workings of sects and movements promoting violence. For in those cases, the basis for accepting a utopian fallacy is one’s willing embrace of irrationality. This means an intellectual submission to some abstract
WILL, and not to some superior order or intelligence, but this of course is a prerequisite for worshipping power rather than order. A follower has to conform to an abstract ideal that he or she can never understand, and which is the opposite of reason.

Utopia can only be achieved by denying (or even destroying) the real world with all of its uncomfortable complexities. People who hold utopian beliefs are constantly subject to cognitive dissonance when confronting the real world. Since utopia is unattainable, those who have accepted it as a guiding principle are continuously frustrated, and turn this frustration into hostility against non-believers. Failure to achieve utopia is blamed on those who do not share in its basis of misinformation. This drives individuals to become extremely belligerent in condemning others who do not agree with their false beliefs: the “others” are turned into the cause for the frustrated individuals’ cognitive dissonance. Someone who holds misinformation reinforces his or her own belief by attacking others who do not share in the deception. Cognitive dissonance can thus become a justification for aggression and violence.

We have been through a century of utopian architectural ideology that determined the “industrial” shape of our contemporary built environment. It has been a colossal failure from the human point of view, generating vast stretches of unsustainable and dysfunctional structures (Salingaros, 2005; 2006; 2008). Those same utopian ideals that drove architects to build this stuff are still driving the profession, however. Famous architects are constantly posturing, and they have figured out how to successfully use the media to propagate misinformation justifying dysfunctional buildings and urban regions built during the past several decades. Clever propaganda gives the false impression that a majority of the population actually likes inhuman structures, whereas in fact only a handful of true believers do. Our innate mechanism of conforming to the majority is thus manipulated by manufacturing a fictitious consensus.

A new building that evokes feelings of alarm and repulsion generates cognitive dissonance in the public when it also hears lavish praise coming from architectural critics. A negative visceral reaction to inhuman architectural forms, spaces, and surfaces is countermanded by bestowing prizes on the new building (for example, another menacing and twisted Museum of Contemporary Art). The usual organizations that give out these prizes all follow the utopian fallacy, so they certainly do not represent true majority opinion. Nevertheless, this strategy gives the misleading impression of universal approval and thus deceives common people into accepting ugly, menacing, and outrageously expensive buildings as architectural masterpieces.

Its followers identify those who disagree with the utopian fallacy as enemies for the entire society. This well-tried scapegoat technique was used repeatedly in history to victimize groups who refused to conform to a utopian doctrine. Identifying some victim group (totally innocent, of course) serves to build solidarity among the group that believes in utopia, and to attract others to join it (as long as they themselves do not belong to the group singled out for victimization). Scruton
puts his finger on the utopian and totalitarian nature of architectural ideology: "One of the most remarkable characteristics of the modern movement in architecture has been the venom with which it cleared a space for itself. Those opposed to it were regarded as enemies, reactionaries, nostalgists, who were impeding the necessary march of history. They were to be removed as soon as possible from positions of influence and power." (Scruton, 2010: page 149).

Stage four: lockout and the wall of mistrust.

A turn towards a more sustainable future for our world needs to apply technology on the small, local scale, and become very suspicious of large energy-consuming projects favored by global industry, international funding agencies, and governments alike (Max-Neef, 2010). The built environment should be shaped to facilitate emotional nourishment and human socialization and to reject non-adaptive industrial typologies. The obstacle that reform faces is represented by a refusal to accept the falsity of many of the global consumerist society’s basic assumptions. People simply refuse to see the truth, and this has led to our global consumerist society’s dependence upon irrationality. We therefore need to understand why irrational beliefs are accepted in the first place.

It is very easy to prejudice a person’s opinion about a subject or event by saying something positive or negative before that person comes into contact with the event. This effect is well known to political lobbyists, who will rush to be the first to talk to an incoming politician. Whoever has the first word can implant either positive or negative thoughts in the politician’s mind, and those subconscious thoughts will influence decisions during the rest of that person’s career. Some authors refer to its negative application as “lock-out” (McFadyen, 2000), a technique used in character assassination. Say something nasty about person A to person B before A and B meet, and person B will be forever aligned negatively against A, who is the target of this “lock-out”. The same technique works to discredit an idea by making a derogatory comment before the idea comes up for evaluation.

Lock-out works to insulate a group’s beliefs from outside influence. A society is defined by a set of mutually shared beliefs, whether those are factually correct or not. At the same time, this commonality actually defines a group in terms of its particular beliefs, and we can estimate different groups’ social proximity depending upon how close one set of beliefs comes to another. Hence the seeming paradox of groups of people living in close physical proximity to each other, but very distant in terms of belief overlap. Genocides occur in which people who have lived together for generations, but who belong to socially distant sets of beliefs, turn upon and kill each other. Or the converse phenomenon is seen, where spatially separated societies are culturally close because of the nearness of their beliefs.

Every social group maintains cohesion through its beliefs, and therefore wishes to protect existing beliefs from external influence. A wall of mistrust is set up towards any competing beliefs found on the outside. In cults, one of the primary messages to followers is not to believe anyone outside the cult, which is but an
extreme version of the natural exclusiveness of any socially cohesive group. Only
information that tends to confirm the group’s beliefs is allowed to penetrate. The
mechanism of selectively justifying a previously held opinion in the face of data that
could disprove it is known in the psychology literature as “confirmation bias”
(Nickerson, 1998), and is explained as an innate mechanism for avoiding cognitive
dissonance.

Curiously, the more outrageous the belief, the more effectively it holds a society
together. This result is extracted from anecdotal evidence in the study of religions,
dangerous cults, and terrorist organizations. Believing in something that is
obviously good, and also promising not to do something that is obviously bad, does
not require cognitive re-orientation that is helped by the reinforcing rubric of the
social group. It could be an easy individual decision. But if conforming to the group
requires an unusual, or unusually difficult action, then the act of acceptance brands
the initiate as something special and makes the group reality even more relevant
and vital. This point has been confirmed by experiment (Gerard & Mathewson,
1966). Initiation rite, common to all societies, are more marked and arduous in
some than in others. It is no surprise that the more difficult the task of initiation, the
more permanent is the attachment to the group.

In terms of conforming to a group by accepting misinformation, the more
outrageous the misinformation, the more tightly the individual holding it needs to
cling to the group. The reason is that those beliefs are “true” only within the social
context of the group but dangerously false outside, which makes life outside the
group problematic for persons holding such beliefs. In this polarizing scenario,
true knowledge freely available in the outside world threatens the essence of one’s
sense of self and worldview, and drives the individual into the isolation and comfort
of the cult. The implications turn out to be as pessimistic as they are unexpected:
those individuals holding the most erroneous beliefs are the most difficult to
approach, and certainly the most difficult to educate (Nyhan & Reifler, 2010).

**Cognitive dissonance and the urge to proselytize.**

It would be a mistake to underestimate the disturbing effect that cognitive
dissonance has on the human body and emotional state. A person holding
misinformation cannot insulate himself or herself from the contradictions that
inevitably arise from everyday life and encounters with the actual world. The
individual is not driven to reconsider erroneous beliefs, however, but instead
employs considerable ingenuity to justify already-held beliefs. Another strategy for
removing doubt that arises from a state of cognitive dissonance consists of
spreading the misinformation so as to find comfort in numbers. The more persons
there are in immediate contact with the individual holding erroneous beliefs and
who share those beliefs, then the more reassurance that not everything is amiss.

A false sense of validation is achieved from the number of believers and the social
effect they provide. Security in numbers supports a worldview as surrogate for a
validation of the false belief itself (which is impossible). The need arises to
proselytize and convince others to adopt the same erroneous beliefs: not out of any intrinsic value or proof of correctness, but simply to increase the buffer of emotional comfort that would counteract the unease of cognitive dissonance.

Pseudo-religious sects expend considerable resources on proselytism, sending their acolytes out into society at large with the mission of converting everyone else to the beliefs of the sect. Initiation into the sect’s beliefs occurs hand-in-hand with the stated objective of training the convert into becoming a minister for converting new members. Just as much effort is spent in educating the sect member to learn about any esoteric beliefs (and misinformation) the sect possesses, as in acquiring techniques of persuasion and practical training that can be used for converting others. Training oftentimes inculcates a deceitful practice of presenting both the sect’s dogma, and the proselytizer, as being reasonable and attractive.

One can identify disciplines that are founded upon misinformation rather than on a verifiable body of knowledge (as occurs today with architecture and urbanism). Training students involves a major part of their education in imprinting dogmas, statements, images, and cult heroes without any justification, while at the same time weaving a cultural mythology of moral superiority, ethical purpose, the mission to change the world, etc. (Salingaros, 2008). The negative side of this indoctrination is also essential: to condemn using apocalyptic terms any messages that would question the misinformation. This is done strictly within an ideological context, so that any threat to the intellectually vacuous ideology will always be perceived as an attack on the sect’s morally superior principles; a reactionary move to arrest progress; an attempt to set the clock back, etc. This indoctrination strategy succeeds in making an acolyte impervious to any future questioning of the dogma he or she has acquired during their training.

The classic study of people who refuse to abandon misinformation — in this case, their belief in an apocalyptic event that never occurred — was done by Festinger, Riecken, and Schachter (Festinger, Riecken, and Schachter, 2008). It was discovered in this study that far from discrediting the erroneous belief, the total failure of the prophecy actually increased the subject group’s fanatical reliance upon the cult teachings. This is a profoundly disturbing demonstration of the central principle of misinformation reinforcement, which is a counter-intuitive detachment from reality. A powerful commitment to the “faith” (and a high initiation price that discourages any turning back) leads to mental tricks inventing all sorts of self-delusions to try and rationalize the disproof of one’s erroneous beliefs. When the failure becomes dramatic, the subject turns to proselytism so as to convert others to those beliefs: “If more and more people can be persuaded that the system of belief is correct, then clearly it must, after all, be correct” (Festinger, Riecken, and Schachter, 2008: page 11).

This urge to proselytize characterizes the group of architects who have accepted the abstract images of contemporary architecture as religious dogma. This group is absolutely convinced that the rest of the population has a false conception of reality, because humankind prefers biophilic structures, ornamentation, comfortable spaces, and buildings on the human scale (Salingaros, 2005; 2006; 2008; 2010).
Hence those architects’ repeated and insistent calls to “educate” the public so that it appreciates contemporary architectural forms because of their supposed moral superiority. Even after a century of failures to convince common people to love such alien forms and mechanical surfaces, the architectural movement to proselytize the public continues undiminished, showing a messianic, wholesale rejection of society’s actual needs.

In criticizing/complementing Festinger’s work, Mathew Schmalz (Schmalz, 1994) points out that denial of a failed ideology and the re-invention of a new myth that avoids facing reality strongly depend upon an existing powerful ideological and organizational framework. Going against reality succeeds only when the group’s belief demanding total submission to its ideology is backed up by social support. Schmalz identifies the crucial ingredients as the power “hierarchy’s exclusive possession of charisma, its control of power and information within the organization, and its expansive legitimating ideology”. The existence of a complex organizational structure provides the necessary support for the ideology, which might otherwise exert too weak an effect for it to sustain the failure of its predictions. These characteristics are a central attribute of architectural education and student conditioning as practiced today.

**Stage five: setting the stage for atrocities.**

The experiments of Stanley Milgram following World War II tried to discover a psychological basis for the atrocities committed during the war. Researchers put ordinary, intelligent people in compromising situations to see if they would do terrible things when ordered to do so. The results are frightening: yes, perfectly normal people can be turned into monsters. It is not very difficult. All you require is a pretend power system that grants authority, and the subject will follow orders to perform terrible tasks. In Milgram’s experiments, individuals were ordered to deliver lethal electric shocks to subjects, and they obeyed (Milgram, 2004). Those administering the shocks did not know that the current was turned off, and that the subject was an actor screaming from the supposed shock. Actually, the consequences are even more frightening than seem on the surface. The subjects knew these were laboratory experiments carried out in a university setting, and yet they followed orders against fundamental human morality. In real-life situations, the power system giving orders often has the right of life-and-death over the subject, which makes any objection to following orders even less likely.

Milgram’s classic experiments were repeated decades later, with distressingly similar results (Burger, 2009). Philip Zimbardo designed and ran the infamous “Stanford Prison Experiment” (Zimbardo, 2007) to further extend the work of Milgram. In a similarly unexpected scenario, ordinary students turned into sadistic prison guards when given the appropriate rubric of power and conformity. Things got so out of hand that the experiment had to be stopped only after a few days. Because of his experience with this disturbing phenomenon, Zimbardo was asked to testify in the Abu Ghraib prison scandal investigation (the terrible events
perpetrated by US service men and women in a prison in Iraq in 2004). As should be expected from the mechanism of conforming, the individuals involved in those sometimes-sadistic power games turned out to be no different than other, psychologically normal soldiers.

The mechanism of conformity drives human beings to accept misinformation and irrational beliefs, and the same mechanism makes a normal human being do terrible things to other human beings because of peer pressure or direct orders from some presumed authority. In all of these related but distinct acts, our hoped-for internal checks seem to dissolve. People do not reflect before adopting a group belief; they do not weigh the evidence on whether the logic behind this belief is sound or not, they just accept it like they accept advertising. When authority or society asks them to perform an unspeakable act, their innate morality, which is their conscience grown from lessons of ethics and compassion, simply vanishes.

**Non-adaptive architectural implementations.**

Especially in the past few decades, we see, for example, the deliberate degradation of a historic urban plaza that had been the focal point of social life for centuries. The damage is done by well-meaning politicians who commission a contemporary architect to "upgrade" this urban space by introducing a more "contemporary" aesthetic and getting rid of existing "old-fashioned" components (Salingaros & Pagliardini, 2009). The usual result is the creation of an unpleasant, psychologically menacing environment that few persons feel comfortable using after the supposed "renovation". Nevertheless, this alarming trend of destroying usable urban space is now becoming established practice all around the world. Citizen protests apparently have no influence, while the architectural establishment routinely gives out awards for these interventions.

This contradictory practice applies not only for the example of urban spaces, but also for many contemporary architectural and urban interventions in general. Explanations are needed for the aberrant behavior of the two principal actors in these actions: first, the politicians who willingly commission a project that destroys working public space in their constituency; second, the architects who conceive and implement the destruction. Politicians’ actions are driven by the desire to oblige powerful groups that can help finance their re-election, and this agenda includes following current fashions without reflecting on any negative longer-term consequences. The dominance of an alien architectural aesthetic in today's society means that, inevitably, an "expert consultant" upon whom a politician relies for advice on architectural and urban projects will propose a non-adaptive intervention.

The second actor — the architect who deliberately designs a psychologically hostile environment — is driven by different motives. It is not an exaggeration to accuse such professionals of committing an act of aggression against the geometry of social spaces (albeit with the best of intentions). Contemporary practitioners have been conditioned through their training to implement a peculiar design aesthetic, regardless of whether it damages the quality of human life in and round
those spaces after they are built (Salingaros, 2010). The ideological architectural education of the past several decades does not teach how to evaluate the adaptive success or failure of a working architectural form or space; the sole criterion used for judgment is whether the design conforms to a narrow set of “approved” visual stereotypes. In the majority of cases, the result of such an untested approach is damaging to the environment.

How can contemporary architects and their clients act against people’s fundamental sensibilities; against traditional design rules tested throughout millennia to guarantee the users’ physical and psychological comfort; against protests by common citizens of the hostility of the structures being erected; against the architect’s and client’s own sensory feedback? Such an architect or client is following a mandate and implicit orders from the reigning design paradigm, which considers itself above all other responsibilities outside its own ideology. There exists a higher authority that overrides both science and neuro-engagement. Architects don’t realize they are causing damage to the built environment, and feel immune to any possible consequences because they are following the wishes of an established organizational structure. There is no responsibility to any individual or agency other than to this system, no possible liability towards society as long as the system’s ideology is obeyed.

**Kuhn and his paradigm shifts.**

When Thomas Kuhn introduced his famous “paradigm shifts” (Kuhn, 1970), he described a discontinuous process whereby a scientific theory is suddenly accepted by the majority of researchers, after a long period in which it is neglected despite its correct basis of evidence. Kuhn theorized that it is necessary to build up some sort of “momentum” before one theory can replace another, even if the newer theory has a perfectly rational scientific base and inevitably explains observed phenomena better than the theory it will eventually replace. This is not the way science is supposed to work, however. Ideally, a better explanation supported by scientific data ought to easily displace an older and cruder theoretical formulation of the same observed phenomena. But it doesn’t happen that way.

All too often in the history of science, a much superior explanation is resisted by the contemporary scientific community and is marginalized and forgotten, to be re-discovered and appreciated only much later. This phenomenon sounds very much like the behavior of non-scientists who switch from one belief to another under the mechanism of groupthink. In this latter case, there is frequently no basis for rationality: a segment of the population may switch political alliances, or popular beliefs, or some key aspect of cultural behavior. Fashions take over the minds of a nation, run their course, and then give way to yet another fashion. The point is that during the period when one fashion holds reign, it is nearly impossible to convince its followers to switch to something else, and rational arguments have no effect. When change eventually comes, it is sudden.
Kuhn was talking about scientists, who naturally represent one of the most intelligent and rational segments of any population. Yet scientists apparently act in an irrational manner when it comes to accepting beliefs about their own discipline, which itself is supposed to explain natural phenomena rationally. Science after all has an experimental basis: researchers measure phenomena in the laboratory, and then analyze observations rationally and not as mere philosophical speculations. Nevertheless, if scientists are not immune to irrationality, how then are we to expect non-scientists to be influenced by rational arguments? Kuhn introduced a term that has been talked about steadily for several decades, but unfortunately he did not indicate how the paradigm shift occurs, and, more importantly, how it could be speeded up. The pieces to answer this question lie in the topics covered in this paper.

**Conclusion.**

This paper reviewed the near impossibility of correcting false beliefs. We face grave problems in trying to educate people who are happily following groupthink. Six tactics people habitually employ to preserve misinformation they have accepted as true were discussed here. Hopefully, future researchers may be able to develop new strategies and techniques for reversing indoctrination. Individuals holding a worldview founded upon misinformation occasionally come to an enlightening breakthrough all by themselves, and then they turn to the available sources of true information to enrich their knowledge base. The literature reveals only little direct success in converting someone who has been following groupthink, however. This pessimistic assessment is borne out by professional psychologists who deprogram members of dangerous cults, where unfortunately a very small percentage of former followers are ever successful in resuming normal life.

The mechanisms for maintaining irrational beliefs are universally applicable, while the primary interest here lies with contemporary architecture and urbanism. A little investigation reveals why the situation in architecture is so terribly polarized. Architects go through an educational system that instills images and prejudices, and trains them in a way of thinking that accepts no revision of certain pre-formed beliefs about their discipline. The professional milieu is no better, as it continues to operate on the basis of never questioning a body of dogma (the “canons” of modernist architecture and urbanism, which are only a century old). Any non-architect can readily verify these conclusions by attempting to debate architects about the soundness of their fundamental core beliefs. Since our built environment and the sustainability of our world depend upon constructing buildings and cities according to scientific knowledge, this narrowness of thought poses a serious obstacle.

**References.**


