2 Schooling

INSIGHT: *School is a bonding experience. The question is, to what or to whom is one being bonded?*

School is a process (i.e., schooling) represented by an institution in the market and/or in the jurisdiction of a State. School is visible when education (or the claim to educate) is imposed by law or by institution. As such, it is product centered. In other words, the result at every level of school is a marketable product. The three main markets of schooling are represented by the roles of "parent", "the State", and "commercial entity". Therein, schools are organized around final results, rather than continuous and life-long processes. Personal goals are not equivalent to the scheduled goals set for students in school. In school, the fundamental goal is good marks on a routine basis. The purpose of schooling is to prepare students to be good worker drones for the market-State.

School segregates children from society (and adults), which only began happening after the industrial revolution. This has created an alienation of the child from society and it is very difficult for them to put together a picture of what the real world is actually like, or formulate ideas about what their place in the world might be, other an arbitrary and two dimensional perceptions that they draw from media or conversations.

Schools are institutions in which learning is taken to mean "being taught". In other words, schooling is the idea that someone with training is doing something to someone. You want people to learn? Teach them. You want them to learn more? Teach them more ... and more. Work them harder. Drill them longer. Keep them longer. And when a new technology comes along, just reorganize the structure with the same variables (i.e., do assignments in class and watch presentational videos for homework, or the opposite). Unfortunately, the advocates for such a system do not realize that learning is a process "you" do, not a process that is done to "you", which is true for everyone. It is basic. Learning, thinking and actively using your mind is the essence of being human. It is natural. With that said, some people have specific functional disabilities that affect their drives and others have specific mental impairments. These must be dealt with in special, potentially therapeutic ways.

No one sticks people's faces in bowls of food several times a day to be sure they'll eat; no one closets people with mates to make sure they'll couple. How ridiculous is it then to force people to do that which above all else comes most naturally to them. Ironically, everyone knows just how widespread and overpowering curiosity can be. If a person is determined to learn, they will overcome obstacles and learn in spite of everything. Support, help and facilitation just makes the process of learning more efficient.

But, if "you" bother a person, if "you" insist she or he stop his/her own natural learning and do instead what "you" want him/her to do between 09:00 and 09:50 and 10:00 and 10:50 and so forth, not only won't s/he learn what s/he has a passion to learn, but s/he will also hate you, hate what you are forcing him/her to do, and often, lose all taste for learning, at least temporarily. Every time you think of a class in school, just imagine a "teacher" forcing carbohydrates, lipids, and proteins down each student's throat with a giant ramrod. It is an arcane form of torturing ourselves.

School has very little to do with learning and although some actual learning does happen in school, the schooling system was not designed to facilitate either the non-contradictory integration of a more accurate model of reality, or an area for playing with a set of tools that might be useful in the integration of understanding and the solving of real world problems; instead, schooling is designed to facilitate introduction into a market-State society (which is, the society present among the global population in the early 21st century). Fundamentally, the ~15,000 hours of [primary and secondary school] conditioning runs completely counter to the propagandistic message that school is designed to help "you" achieve your highest potential [success in the market].

School is [in part] about feeding information into empty vessels that was relevant to the work force at the time. In a very real sense it is an institutional system for the creation of robotic workers. In general, the practice of school is the performance of unaided work and the arbitrary "learning" of irrelevant and uninteresting facts. It is a system of coercion, by contextual degree. It is the assimilation and conformity of someone else's mis-associated needs and desires. It is a system that teaches you how to be a cog in the machine, another "brick in the wall".

School is also a form of social [design] engineering for moulding a population toward a particular end. In other words, we know the historically designed purpose for school as early 21st century society sees it: John Taylor Gatto outlines the history of the modern schooling system in many of his works, and its distinctly structured purpose is to make everyone the same for management purposes. School is a "Skinner box"; it is an institution of operant conditioning. It is designed to reinforce the artificial limitations of ongoing social conditions and conditioning. It is now public record that the school system has been manipulating our minds for the agendas of entities and establishments that do not serve our highest interests and fulfillment. School achieves exactly what it is designed to achieve: obedient employees; power hungry leaders; and an underclass of dis-empowered followers and prisoners.

The schooling system, despite its rhetoric to the contrary, is a completely [industrial] time-based institution. Virtually all of its major features are formally/legally defined by and structured around predetermined blocks of clock and calendar time (the Industrial Age). Just like the industrial diet has created physiological dis-ease conditions, industrial education has created psychological dis-ease conditions.

School is a programming machine [for the mind of the future generation – it is one of the principal interconnections one might have when they are plugged into an artificial limitation "matrix"]. One of the greatest things young people can do is to reject it [as a process]. Unfortunately, without a support structure and a foundational approach toward integration many who reject it end up in a state of limbo. If you go into it without the awareness of what it is trying to do to you, then you are likely to end up in a damaged state. If you go in with your guard down, thinking that it is trying to serve you and make you cleverer, then figuratively speaking, "you are a lamb to the slaughter". If, however, you enter it with an awareness of its structure and behavior, then you are more prepared to repel it.

To be clear, "school" is formalized education provided within structured institutions sanctioned or regulated by the State. Formalized schooling in the market-State is separated by years (a.k.a., grades, age) and/or ability:

1. Primary education from **kindergarten through 12 grade school** (12th grade coming in for most at 16-18 years of human age).
   A. Pre-K: Optional pre-kindergarten education for children typically aged 3-4 years old.
   B. Kindergarten (K): The first year of formal education, usually starting at age 5-6.
   C. Elementary school: Generally spans from grades 1 to 5 or 6.
   D. Middle school (primary school): Typically includes grades 6 to 8.
   E. High school (secondary school): Encompasses grades 9 to 12.
2. Secondary education (a.k.a., **college/university school**): Higher education institutions offering undergraduate degrees (Bachelor's degrees).

Through schooling knowledge can become associated with pain. First, students learn to incorrectly associate school with learning. And then, they learn to correctly associate school with pain. And unfortunately, next comes the association between pain and learning. Potentially, school teaches that education is to be carried out as a chore. There is such a thing as 'avoidance behavior' due to frustration and poor self-image and low self-efficacy (among other causes), which outside others may misinterpret as "laziness".

Sometimes people develop "negative" beliefs about learning because education is frequently associated with force and pain and boredom, and hence, a lot of adults are left unmotivated to learn more about a broad range of topics; because, the "learning experience" of schools was so miserable. Learning (and an education) is not something that someone else gives, or that is purchasable; it is lifelong first-person experience. In other words, it is not fixed to 12 years, or 12 years + 4 years + another 2 years of graduate school. Education is something "you" go out and seek for yourself. Only school can do school. A community-type society has a learning/educational system, but it is not school. There are consequences for non-conformity to school, not the least of which is a feeling of being defective and punishment. In the early 21st century, parents have a need to believe in the goodness of the school system, because that is where they are placing their children for at least 35 hours a week while they go to work (or other) to earn money (due to monetary economic pressures). To a great extent schools serve the parents. It is a daycare for them, it helps them feel as if they are conforming with the rest of society. They get to drop them off and they become someone else's "problem" until they get home.

In early 21st century society, many of the people who embody the problems associated with self-development — politicians, administrators, and teachers — are also the ones charged with solving it.

You can't call something a "service for kids" if they are forced to be there and they hate it. That is a weird word to use, "service". Compulsory is not "service". When learning becomes compulsory, it becomes indoctrination.

The schooling experience has a major and potentially lifelong impact on an individual's ability to learn and one's feelings of self-worth. There are serious and potentially life-long consequences to going through the process of schooling; and, they are most serious when one doesn't realize what it means to be a self-directed learner, and hence, aware of how schooling is not learning.

And yet, among all the downsides to the way education is constructed in the 21st century, public school (a.k.a., public education) has educated billions of people worldwide, bringing them to a higher-level of knowledge and skill, and provided them opportunities out of poverty. Public education has given people worldwide opportunities for fulfillment that they otherwise may never have had.

> *"Every truth has four corners: as a teacher I give you one corner, and it is for you to find the other three." [In other words, those who have come before us have given us potentially useful information that we may critically examine and potentially use as a point of reference to continue our own discovery into that which exists. Maybe there are, and maybe there are not, four corners]*
>
> *- Confucius*

Human senses are designed to communicate meaning to us of the place/space we are in, and we then craft responses within that context. But, in early 21st century society we have now consumed poisoned meanings and feelings and material by the ton, and our senses can no longer taste toxin from nutrition. Most young humans walk into school and say, "This feels horrible". And then, the parent or teacher says, "Sorry, you have to stay here for 14 years or about 15,000 hours … at least." What sort of a 'double bind' might that create in someone? Someone placed in such a position is likely to deaden their feelings (or "feeling sense") so that s/he

can continue to remain in a place that by its very nature is not supportive of life and well-being. When confined to a place that feels "bad", after a while, our "feeling sense" has to dull [for us to survive]. We shut down our feeling(s) because we have to endure it and get through it, and survive. Those who attempt to delve too deeply into the meaning [behind schooling and teaching] often get punished or ostracised. Therein, young humans lose their sense of childhood wonder about the nature of the universe. They shut down because most of that which is coming into them (i.e., is being felt) is something that feels so bad that they don't want to feel it. Effectively, over time school shuts down our intrinsic drive and curiosity; it teaches us to ignore [our sensitivities to life and to our fulfillment]. We become inculcated through the school system into an experience that is commercial, reduced, competitive, and that constantly requires deference to an authority.

Once something has been gated (i.e., "shut out" or "closed out"), then that which can be perceived of the world around becomes artificially limited, until an event occurs that re-opens the gated channels.

2.1 Responsibility and punishment

> *"I don't believe in the curriculum, I don't believe in grades, I don't believe in teacher-judged learning. I believe in children learning with our assistance and encouragement the things they want to learn, when they want to learn them, how they want to learn them, why they want to learn them. This is what, it seems to me, education must now be about."*
>
> *- John Holt, The Underachieving School, 1972*

The denial of self-responsibility in schools is threefold: freedom of choice; freedom of action; and freedom to bear the results of action. In other words, schools do not allow individuals to choose their own course of action fully, and also, they do not permit individuals to suffer the natural consequences of a course of action once taken outside in the real world. Schools as a matter of policy restrict freedom of choice and action, and as such, inhibit the integration of feedback through natural consequences … in the real and relationally meaningful world. It is the tenant of modern education that the psyche of a student suffers harm to the extent that it is buffered by the twin "evils" of adversity and failure, which effectively generates the psychological states of entitlement and helplessness.

Discipline in the context of an authority is punishment by another name. In English, the term 'discipline' has different categorical meanings, it can also refer to someone who eagerly embraces various hardships and is working to "master" a skill. For example, you might take ice baths to develop courage and to gain the physiological (possibly epigenetic) benefits of cold adaptation and stress recovery. At a social level, this discipline [of mind] generally comes from a particular value orientation (which maintains social norms and societal expectations). Notice that we don't call those individuals who help us clue in on various challenges (or the ways they were/are helpful) as "disciplinarians" – we call them mentors, possibly coaches, and always facilitators. Remember from the Social System specification that for every "behavior" we encounter, there's an underlying want or need for which someone is aiming. Also, in English, the term 'discipline' is used to identify different fields of study, such as the discipline of writing, the discipline of geography, or of biology, for example.

Fundamentally, mistakes can contain loads of valuable information. However, through the process of schooling mistakes become associated with punishment. Eventually, learners end up in a situation of mistakes becoming something to avoid (and if not to avoid, then to sacrificially internalize), which induces trauma.

Punishment is used by an authority to get someone to do something they don't want to do or to stop them from doing something they want to do; and, it is often used to "teach a lesson", which effectively degrades mindfulness in both the punished and the punisher. There are enough "natural consequences" in life; only an artificial and arbitrary ego imposes artificial or arbitrary ones. Punishment to alter behavior is destructive to all.

Punishment is a familiar practice to those who go through schooling. The school model penalizes you for failure. It demonizes failure; it is something that should be dramatically avoided. Therein, a failing mark or grade is a form of punishment. A poor evaluation by a teacher is a form of punishment. Discipline by an authority is punishment.

What does someone (e.g., a young human) learn from punishment? Punishment conditions fear. It programs people to fear being wrong (i.e., to fear failure or to fear potential), and hence, learning. Also, punishment and authority-driven discipline encourage covert behavior, which becomes an emergent behavior at the socio-economic level of a society.

In truth, your failings serve you, but we are so conditioned with the unpleasant and downright retributive consequences of failing in early 21st century society, particularly in schooling, that we adamantly avoid failing, and thus, avoid the greatest opportunities for learning. So, we shy away from learning because failing is painful. In the real world, failure is simply feedback [to a learner who is able to remain objective].

In community, we do not punish. Instead, we restructure our environment and our values where applicable, and we facilitate discernment and trustworthy, open channels of communication.

Consider for a moment that a win/lose system based on punishment and sacrifice may actually be a race to the bottom. What type of society would inculcate a state of fear among individuals that others in that society might hurt them; is this not the state of "terrorism"? How might coercive educational institutions maintain themselves without providing external motivations for the people in them to do a variety of things that they

don't want to do? Punishment is entirely consistent with coercive educational philosophies. Extrinsic motivation is all about punishment and external reward. Extrinsic motivation in general, and school in particular, can scramble someone's inherent sense of self-motivation.

> *"School is the advertising agency which makes you believe that you need society as it is."*
> *- Ivan Illich*

2.2 Social relations

> **NOTE:** *In early 21st century society, compliance is rewarded. In community, self-direction is nurtured.*

Where do we see forced social relations? We see them in prison, in school, in many positions of employment, and in the military. Now, show me a place where forced associations exist where people are experiencing harmonious social interactions. Environments of forced association lend themselves quite well, and we all know this, to unpleasant types of behavior. How many issues and conflicts are consequences of young people being forced together? There are reasons why people bully others or behave in a socially corrosive manner.

School not only forces association, it also forces segregation. Does age segregation (i.e., division by age) take place anywhere naturally? Is anything more socially damaging than forced association and forced segregation in school by age and sex? Are not the "arts" of association and cooperation as valuable or more valuable than anything else you learn when you are young?

Schools not only make it difficult for those of different ages to relate to one another, they even make it difficult for individuals of the same age to do so through the enforcement of competition (the scarcity of education).

The primary, almost exclusive mode of relationship fostered by schools among children in the same class is competition. The pecking order and who is better than who, who is faster, smarter, taller, more attractive, who has the best this or that. Who is worse, stupider, slower, shorter and least attractive? If ever a system was designed to effectively produce competitive, obnoxious, paranoid, selfish and insecure social misfits, the schools have managed it. Yet, in the real world the most important social attribute for a stable and healthy society is cooperation.

Schooling often appears more akin to "education at the expense of others", because "you" want to become better than others and out-compete them in school [for grades or praise] and eventually in the market [for a job and for limited wealth]. University programs often market themselves as the optimal path to becoming the best at a particular knowledge, skill, and subject area so that "you" can out compete others in the labor market. Similarly, some secondary schools market themselves as the best school to attend to get into the college of "your dreams". Aren't most aspects of modern life a competitive game where we try to earn rewards and points in school so we can go out and compete for a job, compete for wealth, save to ensure that when we are past our prime we can still have a reasonable quality-of-life.

School is a self-reinforcing competitive ethos. A portion of the children conditioned to appreciate a state of competitive training (i.e., go through the process of schooling) go on to become teachers. The most aspirational teachers become senior management and further reinforce the competitive sentiment.

The structural origins of the present schooling-education system are predicated upon competition as an outgrowth of the underlying socio-economic system. The root sources of problem in the market-state "education system" cannot be understood without also understanding the socio-economic system in which it is embedded. One of the immutable components of the modern monetary economic system is competition, which is drilled into us from birth: from companies having to compete with one another for market share, to people having to compete with one another for labor, to students having to compete with one another for grades, politicians for office, and nations for resources. It is a value oriented substructure in early 21st century society. It is so deeply conditioned into us that many of us think that it is part of an inevitable human nature; rather than the narrow pursuit of one's own detached self-interest, which is useful and protective under conditions of scarcity. Fortunately, the reality of the situation is that everything on this planet depends upon everything else. The notion of a "trophic cascade" is just one example of this reality. A "trophic cascade" is an ecological event that involves changes to the structure of an ecosystem resulting from changes to animals or plants at one or more levels of the food chain. (*Trophic cascade*, 2022)

If the earth is one single interconnected system and the well-being of human beings is dependent on maintaining the integrity of their habitat, then the supposed divisions that separate all of humanity are illusory. Thus, a cooperative systems approach that "manages" our earthly resources in the most optimized fashion; though, more accurately, it allows for a synergy of our understood experience into the arrival at a common decision. Conversely, school teaches that competition is the basis of the world.

In part, competitiveness outside of schooling stems from insecurity and insufficiency: the fact that for so many years the "student" needed to be validated and accepted into a social world that wouldn't see or accept him/her without bearing the proper approvals, authorizations, and insignias, some of which were limited in number.

In school, competition can be as subtle as playing the games: the row that is quietest can go to lunch faster; and, who is going to get the prize for the best essay. All forms of grading and authoritative judging and evaluating foster a competitive spirit which transcends the schooling environment and roots its way into our social lives. If there are award assemblies where there is

a trophy, a prize, a medal, a plaque, a certificate, or some form of recognition and we have decided in advance that not everyone can get it, then the message is clear, everybody else around you is there to be beaten.

Yet, the global school system claims that if it doesn't establish competitive environments it will be sacrificing the long-term "legitimate" objectives for children. One might wonder what these "legitimate" objectives actually are.

> *"When training beats education, civilization dies."*
> *- C. S. Lewis*

2.3 Freedom

> **APHORISM:** *It is hard to conceive that you are in a prison, when you are effectively born into one.*

School is not the freedom of the expression of ideas, it is more akin to the forced or coerced acceptance of ideas. And, even if they can't control what you think, they can at least force you to pretend that you agree with them. And, if they can't force you to pretend to agree with them they will force you to stay in a "special safe place" for so many days out of the year and "out of your family's hair".

Generally, this thing called 'school' tells students when they can speak and when they can use the bathroom in addition to all of its other programming outside of the curriculum, just the milieu itself. What would not appear to be freedom after that? In part, this is why government uses schooling: it uses it to acculturate the young into a society of violence and aggression such that they are incapable of perceiving the violence and aggression inherent in the [modern] society around them when they get out. It actually sets a baseline for violence, coercion and aggression.

Schooling quarantines the learning process -- the knowledge areas are separated from each other, as if cross-contamination were a form of pollution, where history can't touch mathematics and chemistry can't be connected to physics or anatomy. The subjects are generally trapped and monitored, forced with conformity and consequence. Many of the young in this system are tormented by commercialized children who will outcast another for not wearing the latest fashion or being aware of the latest manufactured trend; it is the start of consumer pressure and "market forces" in those who will eventually become good consumers and good owners, and keep the money cycle going (keep capitalism running). Why are so many humans so mean in school, so aggressive and reactionary? Why do they appear as if they are in fight or flight mode, in their survival mind, in a prison that is shaping their perception of reality, in a physical and mental cage preparing them for the rest of their lives in the matrix, in an environment of insulting boredom? School acclimates children to boredom so that in the future they can work long hours at jobs they will more than likely describe as "uneventful, mind-numbing, and soul-destroying", in other words, as boredom. School inculcates children into boredom as an attitude, a habit, and a way of being in the world. Boredom is more than a consequence of curriculum and of teaching, it is actually an ethos; and one that lingers on into adult life. Education is to be done dutifully or avoided entirely, but never savoured or enjoyed. And, it seems odd then that those who are facilitated to be autodidacts, self-learners, those who are more likely to be home and family educated, to be "unschooled", are often asked, "weren't you bored at home as a home schooler?" These people are out of their minds; and the learners (or "unschooled" cordially ask back, "Don't you remember being in school?" Schools are factories of envy, restlessness, monotony, tedium, and force. Just think back to the hours staring at pencils and pens, the mindless doodling, the staring off into space, the desperate passing of notes, the lines, the trying to look busy when you are about to start dozing, the wishing, the dreaming, the rules and orders, the scheduling and lockers, think back to what school was really like, and not some idealized fantasy or a few selected highlights from 13 or more years, and chances are you will recall being bored out of your mind.

"When you are free, then when you are bored, you are boring." This phrase reveals what might be the essence of self-education, and may be taken as reverse psychology, if you will. When you are free you don't have to learn because you will get into trouble, or you will fail a test, or because there is someone who is threatening and cajoling you; you learn because you want to learn. In truth, there is something in you that wants to reach out and touch the world and wants to communicate with it and share experience; it wants to integrate and to facilitate.

Think about all those hours forced into boredom at school. Think of the absence of autonomy, of self-direction, and of the freedom to explore, trapped in a ghetto of peers. Do you even know who you are or what you have interest in anymore after approximately 15,000 hours of processing through such an institution?

Self-learning is a lifelong commitment; it is something which is natural and can be nourished, but it is also something that can be diminished. It is not something you do until you are 18, or you graduate a level, it is not a stepping stone to university or to a career, it is an ethos, like boredom, but possibly it's opposite. Self-learning involves getting in touch with one's inquisitive nature, to set one's own standards for engagement and mastery.

John Taylor Gatto wrote in an article published in 2004 that it is not the potential of self-education that has yet to be demonstrated, but that its success has to be suppressed in the service of compulsory education's true purpose: the cultivation of thoughtless acquiescence and conspicuous consumption which defines our true culture and fuels the economy. Thus, the "education" system's ultimate goal isn't to impart knowledge, or to inspire the love thereof, but to train people not to think at a sufficient level because that is what makes them good employees and good consumers and good citizens.

School is [in part] a mechanism for those in authority to maintain control of a potentially unruly citizenry.

Summarily speaking, school represents an artificial scarcity of choice. Of course, one of the most important things missing from schooling is the freedom of choice (i.e., the freedom to choose). School removes volition. Volition is essentially your [free] will. And, the question everyone must ask themselves is, "Am I choosing this for myself? Am I making informed decisions, and am I acting in a constructive manner on my behalf regularly? Am I improving my circumstances? Do my actions generate or otherwise create more opportunities for myself and others? How are my actions affecting others? Are my actions lessening our opportunities?" To a great degree these are the variables that measure how much "I" have learned. When volition is removed education is no longer about learning and instead becomes about conditioning or modeling in another's desired image.

When learning among community (i.e., "unschooling") is equated with "alternative school", then it can blind people to the possibilities of full on [radical] learning. No matter how extremely great or different a school is from a traditional school or the default standard, it is still a school. Learning as a whole way of life, particularly among a community of learners, can discover learning that no school can find.

Adults can learn what they want to; that same freedom and respect and dignity ought to be extended to the youth of society. Schools treat children like children (and many parents do the same). In other words, there is not a lot of respect going on for young humans in early 21st century society. In early 21st century society the youth are beyond second class citizens; they are beyond prisoners in some cases.

> *"Whatever does not spring from a man's free choice, or is only the result of instruction and guidance, does not enter into his very nature; he does not perform it with truly human energies, but merely with mechanical exactness"— and so when the laborer works under external control, "we may admire what he does, but we despise what he is."*
>
> *- Wilhelm von Humboldt*

2.4 Prison and play

> *"Is it surprising that prisons resemble factories, schools, barracks, hospitals, which all resemble prisons?"*
>
> *- Michel Foucault*

The things that one chooses to do voluntarily give one a sense of fulfillment, of completeness, and flow in their life; conversely, the things one is forced to do are an imposition and makes us emotionally distraught, upset, and distant. The experience of schooling is the experience of having something done to you by an outside force; school is [by degree] a prison for children (both in its internal and external meaning – it is a mental and physical prison principally for the regurgitation of belief). School is force; it is jail for the first part of your life. It is the inculcation of dependence and a lack of self-sufficiency; and some people make it through better than others. Only when one is imprisoned can an outside authority force another individual to "learn" something. In other words, school is an actual prison that children are forced to go to. School is not voluntary, otherwise it would be called 'play', which is what we naturally do when we are young.

Play is the ability to make mistakes without fear, which generates rapid cycle-time learning (i.e., rapid iterative learning). As such, play is activity that is directed by the player(s) oneself (or themselves). Play is an activity that you can freely join and freely leave [without fear of punishment]. In other words, you can quit whenever you want; there are no consequences from authority for losing interest or walking away. If you are not having fun, you quit, you walk away.

The presently emergent scientific hypothesis is: The cost of a decline in our freedom to play equates to an increase in our mental disorders. It is the opinion of Peter Gray (2015) that it is a cause effect relationship. Hence, one of the effects of play deprivation is to make us unhappy. In play we judge our own activity and are not judged and evaluated and ranked and compared with others by others, particularly authorities. Play is a context of emergent organization. In the book "Free to Learn", Gray (2015) argues that children, if free to pursue their own interests through play will not only learn all that they need to know, but will do so with energy and passion. Therein, Gray provides evidence and articulates how all people are born to be self-directed learners. He has conducted several research studies on individuals who were never coerced to learn.

The scientific finding is that depriving rats of play has an effect on their psychology, their personality and their behavior. When these deprived rats become young adults and they are assessed for their emotion stability and positive interconnectability, they are found to be emotionally crippled in comparison to control rates whom are allowed to play as they are growing up. Note here that there are ways of raising rats so that aren't deprived of other social experiences, but are deprived of play. Those that have been deprived of play, if you put them in a somewhat novel environment, they often freeze in the corner, they don't explore the environment as a normal rat would; they don't habituate to their environment. And, if you place them with an unfamiliar other rat they alternate between freezing in fear and lashing out with inappropriate and ineffective aggression. This is analogous to the kinds of behaviors we see in children today in early 21st century society. In rats, this is extreme, they have been totally deprived of play; children in early 21st century society are not totally deprived of play, but they are partially deprived of play. School shackles our instinct to learn and to play.

One of the things that children learn while they play is how to deal with strong emotions. In play we are

learning how to process strong emotions and come to an emergent understanding of our capabilities. For example, we may be learning how to be in a fearful situation and how to overcome it. I can feel this fear and I can overcome it, I can handle this situation effectively and I can process these emotions.

In social play we learn how to not be self-centered and how to pay attention to the needs of others. We come into the world with the desire to play with others, which leads us to learn how to attune to the needs of others. When children are playing with other kids and there are no adults there to solve their problems for them, then they have to pay attention and learn to adapt, to compromise, to negotiate, otherwise the other kids will quit and just leave them. And quitting is a powerful lesson; it is a learning opportunity. It represents the potential that the next time we play together again we will be more attuned to each other's needs so that we maintain play and no one quits. The process effectively facilitates our attunement to others' subtle expressions of whether they are having fun, or not. So, in play we learn to meet our own needs while also helping others meet their needs. We are social animals and we need to get along and interact with others in such a way that they find us a pleasure to be with as opposed to a pain to be with.

Play is a creative activity. The essence of play is that it is fun; and hence, when you play you find your interests. People find what they enjoy doing and they develop real skills while doing it. The secret to living the good life is … play.

You (as a "student") think school is a prison and hate it, and all the adults tell you that you just don't understand. This carries with it the probability of you believing that you are "defective" when you are not such a thing – school maims intuition (and it cuts the legs off of will). It makes independent thinking extremely difficult.

You aren't defective for feeling that school sucks, that school is like a prison or that you are being psychologically conditioned and tortured. Adults that are telling you something else are kidding themselves.

2.5 What does school teach?

> *"School prepares for the alienating institutionalization of modern life by teaching the need to be taught."*
> *- Ivan Illich*

School is what it teaches -- school is not its teachers. Schools teach conclusions [to the young] who might otherwise be having their intellectual abilities encouraged and curiosities fostered [in a fulfillment-oriented community environment]. Anything less is not "fair" to the young. Unfortunately, for many people, the encouraging of their child's rationality and curiosities may lead their child to conclusions that are uncomfortable for them; and a lot of people [would rather] choose to avoid that.

In school, many students learn that they should look to the older, more experienced people in their lives to tell them what to do and who they are. Therein, they intuitively learn to expect to be taken care of in this way. Another thing students learn in school, particularly public school, is that they learn their place in life … which is important. They learn to settle for their lot in life, while at the same time envying those who [seem to] have more in their lives. In other words, school teaches people their place in life.

What else does school teach?

1. It teaches that truth comes from authority. Mostly, the authority figure stands up in front of you, telling you when you have to be there, when you can leave, and what you do while you are there. The school authorities are preparing you to be an adult whereupon you will acquire a greater authority (e.g., a boss or leader) who gives similar commands.
2. It teaches the confusion of intelligence with memory and recall. In reality, intelligence is not the ability to repeat or remember what someone else has told you; and, it is what you do with your intelligence that matters.
3. It teaches that accurate memory and repetition are rewarded by society. You remember what the teachers have told you, and you repeat it where the teachers tell you to (on the exam or in talking to me), and the authority will say you passed, and others will find you intelligent because you "got good marks and evaluations"; whereupon, your prospects for a good university and good career will improve.
4. It teaches that non-compliance is punished. Challenge the authority figure at the front of the classroom, or in the circle, don't agree with them, refuse to do what they say because you don't agree with them, and then, there is punishment and disciplinary action.
5. It teaches us to conform intellectually and socially, or face not being accepted. Because, that is the easiest way to get by without hassle and upset. It is a way of preparing young people to become adult[ed] slaves for the rest of their lives.

In school, students are told, ordered, and assigned [content]. In other words, students are told what their assignments are through orders from authority. Hence, there are [at least] four lessons of school:

1. **Obedience**. Everything is already known and has been decided by your authorities.
2. **Conformity**. You will join us and participate in this polite society.

3. **Punishment**. If you don't participate politely then you are going to stand out and there will be [at the very least] social consequences.
4. **Apathy**. We don't want your self-direction interfering with our lesson plan.

John Taylor Gatto (1991) is one of the more prominent critics of the idea of a public school system. His observations and criticisms of the public school system were distilled into 7 lesson that the schools teach, which he wrote into his work "Dumbing Us Down: The hidden curriculum of compulsory schooling". These 7 lessons are quoted below:

1. **Confusion**: The first lesson I teach is confusion. Everything I teach is out of context. I teach the un-relating of everything. I teach disconnections.
2. **Class position**: The second lesson I teach is class position. I teach that students must stay in the class where they belong. I don't know who decides my kids belong there but that's not my business. Stay in the class where you belong.
3. **Indifference**: The third lesson I teach kids is indifference. I teach children not to care about anything too much, even though they want to make it appear that they do. Turn on and off like a light switch.
4. **Emotional dependency**: The fourth lesson I teach is emotional dependency. By stars and red checks, smiles and frowns, prizes, honors and disgraces I teach kids to surrender their will to the predestined chain of command. Rights may be granted or withheld by any authority without appeal, because rights do not exist inside a school.
5. **Intellectual dependency**: The fifth lesson I teach is intellectual dependency. Good people wait for a teacher to tell them what to do. It is the most important lesson, that we must wait for other people, better trained than ourselves, to make the meanings of/in our lives. The expert makes all the important choices; only I, the teacher, can determine what you must study; or rather, only the people who pay me can make those decisions, which I then enforce.
6. **Provisional self-esteem**: The sixth lesson I teach is provisional self-esteem. If you've ever tried to wrestle a kid into line whose parents have convinced him to believe they'll love him in spite of anything, you know how impossible it is to make self-confident spirits conform. Our world wouldn't survive a flood of confident people very long, so I teach that your self-respect should depend on expert opinion. My kids are constantly evaluated and judged. People need to be told what they are worth.
7. **One can't hide**: The seventh lesson I teach is that one can't hide. I teach children they are always watched, that each is under constant surveillance by myself and my colleagues. There are no private spaces for children, there is no private time. Class change lasts three hundred seconds to keep promiscuous fraternization at low levels. Students are encouraged to tattle on each other or even to tattle on their own parents. Of course, I encourage parents to file their own child's waywardness too. A family trained to snitch on itself isn't likely to conceal any dangerous secrets.

These lesson structures are highly likely to re-generate faith in authority as well as self-sacrifice to authority. In a very real sense, learning is dangerous to authority. Here, a community may recognize that it need not regenerate faith in anything; we can verify existence for ourselves through our experience(s), and coordinate therein.

What is it that the process of schooling will teach anyone, regardless of what is being taught? It is to "behave", it is to "defer to authority", it is to "memorize facts by rote". Often, though not always, school is one class after another of apparently unrelated "subjects" in which you just "memorize" what is being thrown at you, and if you don't, there is punishment. What kind of a view of oneself and the world does that create? What kind of a person does that create? What kind of an understanding of values does that create? And, to put it slightly differently, are you creating people who might endanger your own future as you age in that society? Are you creating fulfilled individuals who have everybody's interests at heart, who can think in terms of a fulfilling context and adapt and change their thinking as new information becomes available? No, schooling does not and structurally speaking, cannot do this. The system is what it produces; and, it produces a standardized and marketable product primarily for the State and for the [cultural] market. Simply, a State education conditions children with what the State wants them to know.

In school, students are taught that they get rewards for obeying and conforming. In other words, they are rewarded (or not punished) for sitting still, shutting up [when told], speaking [when expected], and answering questions according to the plan.

In most schools, people learn that graduation comes through "credits". This idea of a "credit" is visible and plays a role in the monetary economic system also (it goes by the same name). In other words, students learn that at the end of "learning" there is something called "graduation", and "graduation" comes from having accumulated enough points, credits, or "positive" subjective evaluations. Similarly, to be accepted into the monetary market, you too must have credit in the form of currency (i.e., purchasing power) or capital ownership.

Questions are a threat to authority. Ask questions and notice the "authorities" around you. Beware; you may be punished for doing this.

Fundamentally, school teaches you to trudge through life according to the scripts of others. Trudging through to get a piece of paper (diploma) to trudge through some more to get more paper (money). Hence, in part, the schooling system exists to sort people for the market. The market needs some people to work in factories, some to work in offices, some need to be managers, and some need to be policy and decision makers. The market needs employers, laborers, and consumers; it needs money circulation. The current educational system exists to sort people out and to prepare them for citizenry in a market system overseen by a State. Is that truly education? One might then ask, "How will the economy work if everyone has a high level of education and a self-directed nature?"

2.6 Force

> *"School is indeed a training for later life not because it teaches the 3 Rs (more or less), but because it instils the essential cultural nightmare[:] fear of failure, envy of success, and absurdity." [The 3 Rs are reading, writing, and arithmetic].*
>
> *- Jules Henry*

Most of schooling is the process of having opinions formed for you without engaging critical thought and discernment. Most of the school experience is about you showing up and being evaluated for what was prepared by someone else. When people are forced into a relationship, a huge amount of quality is lost from the social environment. In other words, when "you" force people into a relationship "you" lose a huge amount of quality within society.

School teaches that the school schedule is something that must be followed … or else. School teaches individuals to attend, to memorize, and to perform on command, or else. In other words, school is force for "your" own good. It uses compartmentalization and chaos to reinforce the need for authoritarian order; while removing individuals' natural ability to organize, plan, and integrate for their betterment. If you, as an adult, don't feel like you have a tremendous amount of self-efficacy, then it is important to realize that a psychological sense of dis-empowerment has likely been built into you through those 12 or more years of experience in schooling, which at least affects your thinking, and ultimately, your efficaciousness. Oddly enough, some people can get pretty far in life never experiencing or even understanding intrinsic motivation. Some people live their whole lives never entering into the state of flow.

Force feeding individuals information that has no apparent relevancy or relationship to their lives and then assessing their regurgitation establishes a less than ideal environment for fostering positive, serving emotions in learners.

An education system based upon force creates anxiety, stress, and frustration within all individuals under its control. Such a system serves only to control others, and not to support others in their self-directed freedom and intellectual liberation. Observationally speaking, the force-feeding process permanently sours individuals on learning and the mechanisms are well described in Alfie Kohn's work entitled, "Punished by Rewards".

Forcing students under threat of punishment and coercion to take exams is highly likely to lock the true capabilities of individuals. Forcing students to complete work and judging their finished products can create serious stress responses. Such an environment will modify behaviors, decisions, and cognitive processing. The stress individuals experience due to threat and judgment is likely to cause them to act and think in ways that are less than optimal for their well-being and the well-being of the social environment.

Additionally, many schools are funded by the threat of force (i.e., they are funded through taxation, which is backed up by the threat of violence). Therein, if school is a "social responsibility", then force is a social value.

2.7 Stress

> **NOTE:** *Having to ask permission to use the restroom is a dehumanizing experience. Some schooling experiences are more dehumanizing than others.*

It is a natural and healthy response to fight back against oppression (i.e., the forced un-fulfillment of needs), to escape, or to seek help. In a system based upon authority we either conform or rebel, both of which lead to self-destructive behavioral patterns. Or, we escape the trap entirely and build a new system that makes the old one obsolete. But, what if you are in a position where you realize that fighting back is futile because the opposing party has "authority" and/or a monopoly on violence (to escalate it infinitely beyond your capability). Such a structure has the potential of maiming self-empowerment (i.e., generating self-helplessness) and wasting cooperation. How might someone's brain deal with the overwhelming stress being imposed on them under such aberrant conditions? One way is to "tune out" or to enter a dissociative state as a natural defensive state of the brain [in part] for blocking conscious awareness of emotional pain. Effectively, some people disassociate as a way of dealing with their environment, and this disassociation persists.

The actual effect of school is to put some people into dissociative states and states of psychosis. The belief in "authority" is actually a state of psychosis involving a "loss of contact with reality". As is detailed in the Social and Decisioning Systems, there is no such thing as "authority". Effectively, the process of schooling creates psychotic symptoms in people by conditioning them to believe in and respond to those who themselves believe they are authorities. In early 21st century society, these psychotic symptoms might appear normal to most of the population because most people have gone through the process of schooling or a similar indoctrination process

(i.e., they have had the belief inculcated into them). However, in a cooperative and fulfillment-oriented community based upon the natural environment, the so-called "normal" behaviors expressed by people in early 21st century society would be seen for what they really are: characteristic symptoms that indicate a level of severe malfunction where the person is unable to differentiate real from not real.

It is common knowledge that unwanted stress negatively affects learning and memory. The man who gave the world the "conditioned response" was also one of the first researchers to recognize the profoundly negative influence that stress has on the learning process. In 1924, during a major Leningrad flood, water surged high into Ivan Pavlov's laboratory. The terrified dogs that Pavlov had spent weeks and months conditioning were trapped in their cages and had to paddle for their lives with their noses just barely above the high-water mark. After these animals were rescued, Pavlov was shocked to find that the stress of the flood had produced such profound changes in these animals' brains that they had unlearned the conditioned responses he had worked so hard to implant. (Pavlov, 1927) Recent research confirms Pavlov's findings. Over 125 studies of more than 36,000 individuals have shown conclusively that the more stress you are under, the lower your memory performance, no matter how it is measured – by grade point average, IQ, or any other form of achievement test.

There are [at least] nine primary reasons why excessive and unwanted stress significantly decreases learning and skews decisioning:

1. Stress can atrophy and wither neural connections.
2. Stress can wipe out memory by literally killing neurons.
3. Excessive amounts of stress inhibit the creation of new brain cells.
4. Stress negatively affects specialized neurons called glial cells, inhibiting them from transporting nutrients, cleaning up neuron waste, and generating the insulation that surrounds neural wiring.
5. Stress compromises learning by promoting the negative expression of specific genes, resulting in the creation of neural tangles, the obstruction of working memory function, and a propensity to engage in reckless behaviors.
6. Stress can cause neurochemical reactions in the brain, producing "neural static", which garbles the brain's ability to effectively prioritize information for inclusion into working memory.
7. Stress can weaken the body's immune system with the consequence that it reduces someone's desire and energy to learn.
8. Stress destroys the brain's ability to effectively drop into the incubation states (*Sleep, 2009*).
9. Stress causes a shift in neural energy (and blood flow) away from our most flexible and evolved neural structures to our most fixed and least-evolved structures. This neurological "downshift" has the potential to "blank out" our learning and creative abilities, while also negatively affecting our capacities for big-picture thinking and planning for the future, as well as reducing deep empathy and compassion for others. It also increases impulsiveness, which leads to the high number of behavioral problems seen in stress inducing institutions.

If learners begin to feel aggressed upon, threatened, subjugated, or alienated, they are more likely to stop learning, start arguing, cease participating, or perhaps drop out [mentally and/or physically]. This is simply the fight or flight reflex taking effect, which leads to [a state of] disassociation [with one's environment].

2.8 Indoctrination

> *"Governments want efficient technicians, not human beings, because human beings become dangerous to governments – and to organized religions as well. That is why governments and religious organizations seek to control education."*
> *- Jiddu Krishnamurti, Education and the Significance of Life*

The process of schooling removes [by contextual degree] the self-reliance and self-esteem of individuals [while instilling them with fear] to make them more malleable and susceptible to authority; it effectively trains deference [to authority]. In other words, schooling trains people to defer to "authorities" (sometimes also known as "experts", "teachers", and other "professionals", "leaders", or "owners"). Bluntly speaking, school emphasizes regimentation and conformity while it leads people around and dominates them by directing and scheduling their development. Once we have established that conditioning is indeed a major tactic of public school, we have to ask what the students are being conditioned for. Again, candidly speaking, school is a place where human beings are trapped and their minds are opened as a dumping ground to whomever controls the curriculum. And, over the years, a variety of different interest groups have tried to shape the curricula.

School often overlooks the negative factors of a given society, exaggerating the positive, and providing a superficial understanding of its meaningful operation [and structural purpose]. As such, school becomes an efficient structure for inculcating beliefs and other patterns into people, principally, the belief in authority. In early 21st century society, the greatest authority for some is the State [or nation] and for others it is the market [or business, ownership]. In other words, the State is a god in early 21st century society for some as the Market is for others. One ought to ask themselves

how that might have happened – could it possibly have something to do with the nature of schooling? The state appears to make a lot of sense after 15,000 hours of schooling (or approximately 12 years). Allegiance to the state is implicit in much of schooling, and it is still noticeable in many alternative schools.

Schools are autocratic institutions designed [in part] to indoctrinate students into an autocratic socio-economic system. Practically speaking, school instructs individuals in their identity as the citizen of a nation-state and a future laborer/owner in the market. Through schooling our resistance to authority is bred out of most of us. In practice, schooling is a behavior system that trains people like people domestically train animals. School exists [in part] to create a uniformed pattern of response to authority – that is the outcome and was [quite possibly] the intended result. Yet, it is also true that the claim that school is solely about control is an overly simplistic narrative.

If education is enforced in any manner, then surely it is not about personal development … it is about conformity. It might be interesting to note that in Germany in 1936 a law was passed that made it mandatory for all German youths to be educated in National Socialism through the Hitler Youth Program (except for Jews). The Nazi's even punished parents with jail time when they would not allow their children to join the organization. Over time, the youth of the country began to regard Hitler as a god-like figure/leader. The National Socialists became willing to die for his cause. In early 21st century society also, schools are reproducing similar, though significantly less caustic, authority-oriented belief structures. It was not until very recently that the act of homeschooling was not a seriously punished offense, in Germany.

Learning is not about entering an institution that is organized by policy and managed by a collection of bureaucrats and security officials that are there to make sure the policies are followed. Like the State and industry, school treats "students" as mere units moving along an assembly line governed by a manager and policy / procedural documentation.

Despite their "democratic" claims, the few owners with the greatest wealth in early 21st century society have long seen compulsory schooling as a mechanism for maintaining control of a potentially unruly citizenry. In 1909, Woodrow Wilson, then president of Princeton University, put it this way in a speech to the New York School Teachers Association, "We want one class of persons to have a liberal education, and we want another class of persons, a very much larger class of necessity in every society, to forgo the privilege of a liberal education and fit themselves to perform specific difficult manual tasks." A scarcity-oriented economy doesn't have a need for creative and cooperative systems thinkers.

In school, children are taught to be servants [to an authority]. School is not about building self-reliant, confident and cooperative individuals, but about building a servile class of people; a class of people subservient to the greatest owners; a class of people who are unlikely to freely cooperate and express their creativity and imagination when they encounter a problem (i.e., they do not "cross the chasm" of self-integration). Instead, they become thinking servants who do little more than stimulus-response. Instead of crossing the chasm on their own they have to wait for an authority, teacher, expert, leader, or manager to tell them what to do next or to give them the resources through some requisite exchange. Some people become so disconnected from reality that they can't even fulfill their own needs. It is the creation of a naive class of people, the extension of adolescence, the generation of a mass of people who become absorbed into the collective chaos of early 21st century society.

What if school included the notion of an education as the idea that it is possible to self-direct and to self-integrate? Then, it is likely that the population would begin cooperatively coordinating its efforts at scale, and individuals would stop turning their ability to navigate over to an authority, which would essentially mean the end of schooling, as well as the end of many other socio-economic institutions reliant on the reinforced regeneration of the value of competition in early 21st century society.

There is a saying, "Strings attached often turn out to be chains". Are these strings going to make our independent thinking difficult. There is a schooling primary and it says, "Want them to learn more, teach them more."

In a sense, the State and other forms of authority are giving "students" assignments (as work dictates) at a very early age. They say, your school work is your duty as a student, as a "citizen", as someone who has yet to begin living their own life.

2.9 Subjectification

A.k.a., Academia, non-interdisciplinary.

Subjectification is the divisioning of reality into teachable subjects (or, disciplines). To cut off a single field, any subject, from the rest of cognition, is to drop the vast context which makes that field possible and which anchors it to reality. The ultimate result, as with any failure of integration, is floating abstractions and self-contradictions. Potentially generating a form of compartmentalization with respect to values, desires, and logical self-interest, by the compartments of private, economic, and political life. Relating one context of knowledge to another is necessary for integration. Reality must be viewed as a whole, a unity, in the formation of concepts that indicate aspects of reality.

Note here that the term 'academia' means to separate a whole into disciplines or subjects. (*Discipline*, 2019)

INSIGHT: *When people learn superficially, then only recognize reality superficially.*

2.10 University/college

CLARIFICATION: *What the words "college"*

and "university" stand for varies significantly by country. In general, a "college" is a schooling institution of "higher education" that may stand alone or make up one part of a university. Within a single university, there may be several colleges that cater to a variety of specialized professions, such as law, medicine, the liberal arts, etc. In some countries, the terms "faculty" or "school" replace the usual meaning of college (e.g., "faculty of law" or "school of medicine", instead of "college of"). Sometimes "college" and "university" are used interchangeably.

In early 21st century society, the ultimate goal and measure of an education is a college/university degree. There are two reasons why college used to mean a lot more than it does now [and secondary school was someone's ticket to getting there]. The first reason was that university kept certain sets of knowledge more protected from the ordinary masses. And, the other reason is/was that everybody is told to go to university for university is their ticket to "success".

QUESTIONS: *What type of a society would charge people for learning? What type of society would create an admissions (e.g., college admissions) boundary to bettering themselves and developing the skills necessary to survive and thrive in their world? What type of a society would "in-debt" future generations for education in the present? What type of a society would use the threat of violence (Read: taxation) to pay for the schooling of others?*

The university degree replaced the family name as a centralized model of trust for businessmen. The trust relationship is that some person graduated from this university, which I trust, so I trust them to work in my business. The businessman could trust that the graduate was roughly as good as the colleges reputation. Colleges are selling and students are buying a credential, nothing else. Colleges are credential factories. What is being bought and sold is the certificate. The credential signals to employers and others that someone has some minimum standard of acceptability based on the reputation of the institution. A certificate from an academic institution (the academic system) means that you are approved for placement in commercial institutions. Naturally, the more certificates someone gets from a certificate rewarding system, the more likely someone is to become a spokesperson for that system. In the [labor] market, coaches/teachers are certified and sold.

A degree is more easy to obtain now than it has ever been in the past. Hence, it is becoming a commodity that is no longer able to sell itself on the basis of rarity. In the market economy the notion that "my degree is valuable because not a lot of people have it, or because it says something really special ... about me" is beginning to be seen as vacuous. More and more people are realizing that their ability to survive and thrive is actually based on our capacities to solve problems, not to acquire pieces of paper. In the past, the degree was the primary market signal for a person's capacity to solve problems and to create "perceived value" for others, but now, the signaling power of that degree is weakening amongst the numerous ways we can freely and transparently demonstrate our intellect and abilities. In the early 21st century, people have an abundant number of ways of educating themselves and demonstrating their abilities. There are many alternative ways for people to signal their abilities and share knowledge when global communications mediums and creative avenues are essentially free and open to everyone. One might well wonder how this abundance of access to knowledge and the ability to help others affect the [labor] market? We no longer need personal intermediaries like school and agents and representatives, and when logically extended, money itself (which was at one time a requisite for education and labor). We don't need institutions to signal our abilities or to provide for our fulfillment; we can signal ourselves and create for our own fulfillment.

Primary and secondary school were once considered preparation for this thing called "university", which was preparation for this thing called "employment". Herein, it is important to remember that "employment" is a legal term, and not a term that describes work within the Community. Fundamentally, no one needs university to develop passions, or to step forward in their own development and facilitate the development of others.

A degree is supposed to represent competency. In the real world, competency represents itself. It is important to recognize that universities do not add value to us (or to community); they are a product of a specific (and one might say, unfortunate) socio-economic environment, that of employers and employees. In reality, university degrees exist primarily to produce employees.

In early 21st century society, university is the finishing school for citizenry. In other words, schooling is partially a tool of the State and university is its finishing school. It is the metaphorical nail in the coffin to social conformity around the encoded concept of "authority". It represents a duty to contribute to the perpetuation of the society in which one was enculturated and given the gift of an "education". Therein, the institution of college/university is designed primarily to provide graduates with employable skills and/or managerial skills. In fairness, these institutions also conduct research as well as providing a space for socializing and recreating, but these are secondary to the organizations primary purpose of being a place for self-directed learning and socio-technical excellence, or a place for indoctrination and conformity.

What do capital industrialists and other social controllers (i.e., human resource managers) want? They want a population with skills useful for specialized commerce as well as a predictable and ordered subordination among the common population. Effectively speaking, university is a commercial product that standardizes and turns out other commercial

products. Yet, statistics of working university graduates show that many (if not most) of them don't end up working in a field related to their university education.

Here, we are called to notice the general difference in perspective toward life taught at "prestigious universities" versus the perspective conveyed by most other schools. At the Ivy League schools they teach their students from the perspective of, "how to make a living for yourself", and at all the other schools, especially public schools, they teach students from the perspective of "how to get a good job."

In the market, educational establishments are in competition with one another. Hence, they naturally attempt to hoard knowledge, creating artificial scarcity to give "market value" to the information they systematically sell as a product / service. Today, however, some universities have such a great reputation, as well as such advanced and expensive technological research facilitates that they are capable of giving away a small portion of their instructional-oriented knowledge for free. MIT OpenCourseWare [ocw.mit.edu] is one such example.

College/university is an institution that came to be when most people had no [easy] access to information. Through the internet, anyone can replicate everything that university (as an institution of knowledge storage and sharing) does, for the equivalent of marginal cost; with the exception of the achievement of the piece of paper (i.e., the "diploma") at the other end. Teachers and professors and authorities are no longer gatekeepers. In the age of ridiculously abundant information and multiple avenues for acquiring knowledge, these anachronistic institutions are slowly being seen for what they are: principally, scarcity promoting structures for rolling out a new generation of employees for State industrial capitalism.

There is more educational freedom in university. Yet, university is different than other schools in ways that seem important but are insidiously not. University is still schooling; it is just a different version of schooling. To put it less eloquently, it is true that everything "stupid" about primary and secondary school is less "stupid" about university, and even less "stupid" about graduate school; but, school is still school is still school (i.e., schooling as a process has a set of characteristic variables which exist along a spectrum and produce equivalent behaviors along the spectrum). People are attracted to these places for entertainment, socializing, and personal interests, all worthwhile. However, a common goal is to come out a winner and enter your next role in the life of a machined society.

2.11 Professionals

> **INSIGHT:** *One of the great failings of a lack of critical thought is the assumption of authority around a given data set.*

In school, the authorities tell the students what to believe, and after graduation, the students become a "professional" practicing in what they have been schooled to believe. "Professional" is a market-State term. A "professional" is someone who has been trained and is being paid to render a service or an opinion in the market or State. In the market-State there are inherent hierarchies of professions, and hence, power-classes of professionals. In early 21st century society most people do very little for themselves, and rarely do they have volunteers to do things for them. Instead, most people hire "professionals" to organize, manage, and fulfill their needs. A [professional] service culture is not equivalent to the engineering of need fulfillment. In truth, potential is wasted through a societies contrived notions of [a "professional"] identity.

Certainly, any society demands a certain level of training, experience, simulation, etc., before it accepts someone as capable of practicing some service that can greatly affect others, or another (e.g., piloting potentially dangerous vehicles, conducting a surgical procedure, etc.).

2.12 De-schooling (unschooling)

People who grow up going to school end up believing that learning is something that has to be forced; and, therefore, that learning is not fun. Children who are never forced to learn or to do schoolish things have no reason to believe this. Before children, and more importantly, their parents who have gone to school and do believe this, can find the joy in natural learning, they first have to unlearn this idea that they have acquired from the forced learning (school) model. This healing and unwinding process is usually referred to as "deschooling" or "the deschooling period".

"Deschooling" is going through a period of time when you are decompressing from all of the extrinsic motivators that have stripped away your intrinsic motivation, your own sense of identity of what you want to do and your sense of purpose. Many people in early 21st century society seek spiritual guidance from others for identification of their "life's purpose". Yet, if they were to just strip away all the conditioning and trauma they might see the purpose in life for themselves.

> **DE-SCHOOLING INSIGHT:**
> *Indoctrination + Regurgitation + Graduation ≠ Education*

"Deschooling" is effectively a period of detoxification [from the toxic accumulation of by-products which someone has accepted, by varying degree, while in the process of schooling]. People who begin deschooling might do nothing for a period of time because they need to rest and recover, to decompress and to re-set. "Deschooling", if not interfered with, eventually leads to a higher degree of completeness and confidence; but, it can take time to re-integrate one's sense of self-esteem and self-direction. From a parent's perspective,

deschooling is a time of relaxation and healing away from the system of conditioning. It is important for a parent to note, however, that often the entire process of deschooling starts over again for the deschooler each time a presumed authority figure appears to instruct the deschooler. In other words, the deschooling process starts over again each time someone from an apparent position of authority tells the deschooler what s/he should be doing with his/her time.

Deschooling can be slow because it is not just about understanding, it is also about letting your emotions catch up with your intellect, which takes time, and often, an environment of support. Read a little, try a little, wait a little, watch [and repeat]. This is a useful mantra while you are in the throes of deprogramming yourself and relaxing into the natural flow of learning, of inquiry. It can be painful at times to look at the broken trust and suffering that one experienced around the whole schooling process.

Many people don't want to face the truth that many of the ways in which they were treated, when they were younger, were morally wrong, and that many of the conditions they suffered were unjust, which can be difficult to come to terms with (i.e., to accept, process, and move forward). Life goes on. The realization that one has been duped is an opportunity for learning.

Because schooling is a model that becomes deeply conditioned into peoples' psyches, it can be difficult to de-condition from that model and integrate a new and more accurately "emergent" one.

People who grow up around school have a degree of fear and panic around the non-existence of school. Partially, this is because they were told that school is crucial to life and that if they didn't finish school they wouldn't have the ability to provide a life for themselves. Likely, they were also told that if it wasn't for school no one would know how to read and write, and that there would be this thing called "chaos". They may have also been told that if it weren't for school then laziness would dominate.

What is laziness? Is "laziness" just a reaction against the constraints placed on someone by an overly controlling [schooling] environment? Is "laziness" possibly just a reaction against that process, against being programmed? Is "laziness" a fear response to failure? Is "laziness" a lack of energy, or an unwillingness to apply effort, as a result of abuse in life? How do you feel when your day/week is completely busy and being programmed for you by others? Disengagement sometimes looks like "laziness" to people on the outside. Yet, downtime and recovery is often where our most creative ideas come from -- from stillness often comes a build-up of energy and power. What is laziness as a measure of someone else's behavior (i.e., how exactly does one individual judge another individual's behaviors, or lack thereof, as lazy)? In community, laziness is a personal projection onto another. If you call someone you love "lazy", then you ought to understand that they may come to believe your label.

Maybe someone is doing something internally and does not look productive form the outside, but inside there is processing going on, there is a part of the naturally cycled process of learning. Or, maybe there is something actually wrong. Downtime is useful; it is a time for processing, restoring, thinking, doing something different, and de-conditioning/decompressing. Therein, it allows us the space and freedom to think about what might be going well, and what might be going wrong, in one's life.

Trying to stay busy is a failure to acknowledge that the moment you are in is the only one you can live.

Practically speaking, it can take a long time and a lot of revision and reflection to unscrew the worldview that is plugged into someone's brain through schooling. And, it is sad to see how many people can't unplug from it completely. In order to actually better oneself and others, then you kind of have to realize the hole that you have been thrown into. And if you don't realize it, you might live the rest of your life in that hole. A life of a higher potential is about identifying and stepping out of (or around) holes when you encounter them.

It is important for our health as individuals to look at our past in a meaningful and constructive way [so that we stop feeling defective and we don't let it beat us down into despair].

Generally, parents come from the same school system that they send their kids to. To put the same idea forward from a somewhat linguistically imprecise psychoanalytic generational perspective, "bad" people tend to do "bad" things because "bad" things happened to them. Without interruption, most societies condition and repeat the same pattern of abuse and trauma across generations. We developed ways to protect ourselves from further harm when we didn't get our needs met as children. And, we repeat those same patterns over and over again even when they no longer serve us as adults.

Once a paradigm has become established among a society and the population has given away their power to people who spout the paradigm, then that population essentially becomes stuck in the replication and multiplication of that paradigm. Once a paradigm has been established through belief and repetition (in a parrot-like fashion), then it becomes extraordinarily difficult to shift people away from their limited understanding.

People who support or have otherwise become invested in the system will say, "I went through the school system and I turned out fine." And from their perspective they did; they can pay the rent, they can take care of themselves and their families; and they feel like, "How dare you attack this system, it did good for me." At a basic level, the system they were processed through has formatted their thinking, conditioned their opinions, and re-orientated their values to find acceptable behaviors and systems that if they more accurately understood themselves and the real world they would find unacceptable. And, its likely (or possible) that they actually found school unacceptable at the

time [they were in processing through the condition system of schooling]. In other words, they do not realize that they have come to accept artificial limitations, misunderstandings about themselves and others, and [by degree] the initiation of force, for those are the things they have been conditioned to accept through schooling. Schooling modifies and shapes one's own perception of themselves and of the surrounding world, while masking the real influence of its social purpose and content. It effectively conceals how it contributes to the reproduction of harm and the limitation of individual potential. In other words, it masks the social and economic roots of under fulfillment. The process of schooling itself is rarely interrogated and critically examined in school [or anywhere else in early 21st century society, for that matter]. The system is designed to repeat its own cycle.

When you are in high school, people are already asking you what you want to do for the rest of your life. Early 21st century society has a practice of trying to establish who you are (i.e., where you fit in the socio-economic hierarchical system) and make these proclamations before you even have the tools for self-discovery. By the time you want to start figuring out who you are, you are already too busy pretending to be who you said you are going to be.

In academic schooling people spend years developing their opinions, many of which are contrived, about the way in which the world should work. Fundamentally, it is unwise to expect that just because something was apparently good in our own lives that it will be good in the lives of others; particularly if we have been living sheltered lives.

Many adults don't want to look back and admit that they were deceived, that they were lied to, that they were forced and punished for doing things that they didn't want to do, that they were put through a processing machine. In this sense, there is a rationalization that happens. They have become completely invested in the system, of which they are a product. From a wider perspective, what these people are essentially saying is, "I have become attached to my given identity (or, the identity I have been given) and I cannot change or accept change, for then I would not know who I am."

The enemy that the system of schooling and forced education crushes at each and every opportunity, starting at birth and continuing until death, is: creativity. When someone's life is dominated by curiosity, then creative desires become relatively immune to this agenda. When people are creative, they want to make things, not buy things. They want to discover, not follow. They want adventures, not entitlements. They want self-control, not control of others. They want intelligent
s, not social sacrifices. They want to free others in like kind and not claw over others to see who can acquiesce or acquire first. They set goals and are not set back by agendas. They are creators, not social manipulators. The worst nightmare of social controllers is a population of intelligent, creative, and curious individuals sharing and working together. Such people are potentially subversive to self-serving agendas. So, once employed or in debt, they are buried alive in contracts written up by organizational entities that fear them and wish they did not need them. These contracts hijack their physical and intellectual freedom, and prevent them from working on what they think is important, in favor of what a "boss" orders. This is a system of slavery by any other name – a system of profit and social control over people.

Those who choose to engage with and stay in artificial structures of forced limitation, must remember at all times (i.e., always and all the time), that they are being molded and patterned to fit the narrow and superficial agendas of that particular society. Some control structures are simply more likely than others to refresh a "mask" over reality, and cause a forgetting of the true nature of this existence we all share. It is important to remember that we all naturally entrain to our environments, and that someone can entrain to a corrupted environment [over time] without realizing it -- by being continuously present in (or exposed to) that environment.

For those who have been subjected to "power over" [fulfillment] strategies for most of their childhood, school seems helpful as a natural extension of the parenting process.

> **INSIGHT:** *Before calling the young a pejorative, such as, "clumsy", "bad", a "disappointment", or a "child", consider the question, "Is this how I want this young person to experience himself/herself?" Which, eventually speaks to the type of relationships this person will be able to form as an adult: their friendships; their romantic partners; and ultimately, how they view themselves.*

2.12.1 The schooled narration of life

> **MAXIM:** *The largest proponents of slavery are often those who are the most enslaved themselves.*

The general and impressionable narrative of life given to people by schooling is: You go to kindergarten, and that is a great thing, because when you finish that you will get into first grade. First grade leads to second grade and so on, until you get out of primary grade school, and now you have secondary high-school and life is just revving up. The thing is coming, and then, you go to college and become educated. Some of you will then go on to graduate school. When you are through with school, you go out and join the world's workforce (or become part of ownership class) where you have timelines and quotas and tables and deadlines and commands to give [into]. And, all the time that thing is coming, its coming, its coming, that great thing, the success you are working for, that absolute reward. Until one day, if you are fortunate, you wake up somewhere and you say, "My god, I have arrived". Yet, you don't feel very different from how you've always felt, and there is a slight let down. It is

here, in this moment of pause, that the courageous and still inquisitive begin to reflect on this feeling; they begin to search more deeply for answers. And, if they search long enough, they eventually realize it was all a hoax, a dreadful hoax. "They" made you miss everything by expectation. We cheated ourselves the whole way down the line. We thought of life by analogy with a journey, a pilgrimage, which had a serious purpose in the end, and the point was to get to that end, success, or whatever that it is for you, maybe heaven, after you are dead. But, we missed the point the whole way along. It was a musical thing, and we were supposed to sing and share and dance and create while the music was being played. Then, after this realization, you begin to inquire about all the other illusions that were once accepted, tolerated, and dis-integrated as truth. One's whole value system of what's important and what's not, what's good and what's not, what's worth putting effort toward and what's not, must be called into question [not to destroy the whole value system, but in order to see it for what it is, and to redirect where necessary].

Among community, why would you follow this narrative; why would you stop being yourself and become a tool for someone else, or for someone else's agenda?

3 List of community learning techniques, methods, and strategies

There are no pre-defined, authoritative programs of study in our learning community. Learners progress from module to module (or experience to experience) dependent upon their developing interests, curiosities, and goals. This progression of flow is known as 'branching', and therein, the system keeps track of the modules someone has completed (including the interactions the individual participated).

A module is one or more closely bound learning objectives or purposefully definable experiences designed by an earlier learner who may be acting in posterity as a facilitator. Modules may also have a series of learning tasks (or interactions) including but not limited to exercises, events, videos, and other activities relevant to the acquisition, completion, or experience of the learning objective(s). In a sense, every module could be seen as a "situated problem" representing some form of explicitly formalized inquiry, which involves access to knowledge and the practice of tasks [to acquire a set of knowledge and/or skills for oneself].

Community recognizes that lengthy, course-based instruction is perhaps not an ideal model for learning. A course [of study or of instruction] is still the "educator's" pre-existing combination of connections, and so, the "teacher" is highlighting by default, whether intended or not, certain elements of the discipline and deselecting other elements. When a course follows more of an "instructionally open" and tutor-based approach, then individuals have the space to express their own views (allowance for critical thinking and logical integration), and they can explore and involve their own personal learning preferences, while truly integrating their experiences. Our community fundamentally requires an environment where individuals are allowed the space to foster the development of new and potentially novel (i.e., creative) connections. In other words, it is an open approach, and not necessarily an instructional approach.

A second issue with courses is that as our understanding of learning itself continues to evolve, those methods and strategies followed in a course must be continuously updated and adapted, which is a tedious action for a course instructor to pursue, if they even remain aware of the understood advancements in the field of learning sciences. And, if an instructor is aware of changes and has a desire to implement those quasi evidence-based changes, then they require the permission of another layer of authority. Certainly, the change management process for a course of instructional material is less efficient than the change management process of shorter modules and their associated learning objects.

When a module is created, then a defined sequence of learning activities, events, content and materials are associated with (Read: linked to or placed within) the

module. And, anyone can facilitate the creation of a module.

When a learner decides to "take" a module, they may either follow a predefined path (i.e., a template), such as the one created during the modules initial establishment, or they may define their own path (i.e., their own sequence of relevant activities and events, personalization). This flexibility allows individuals to pursue their own path of learning and joy, while adding to the learning community's understanding of the learning process itself. Each new path to an objective or purpose helps to more greatly inform the community's knowledge base. In many ways, learning is like journalling.

Module sets often contain different templates, which represent different activity pathways to the same learning objective. Every learner has the choice to select their next learning objective/module.

Within our community learners choose those activities, events, and materials that they wish to utilize during their learning experiences. Learners have three primary options when it comes to personalizing a module. Firstly, they may select a "good practice" design template that other learners have followed as an efficient and enjoyable way to complete the module. Secondly, learners may follow the advice of the community's recommendation planner, which provides the learner with a selection of templates that meet the learner's personal preferences and explicit requirements, such as completion date, the amount of deep practice desired, and the desired amount of collaboration. Finally, the learner can define (or develop) their own unique path.

Learners may formally enrol in a module when they have met the module's prerequisite knowledge or skill requirements. Some modules require no prerequisites and others necessitate the taking of prerequisite modules. Few modules exist in isolation; there is a tree of integrated progression with all knowledge. As the learner advances, s/he moves further and further down (or "along") the knowledge map. The great majority of modules have content elements (Read: specific knowledge and tasks) that are also part of another module. The restricting of participative access (i.e., enrolment) in a particular module due to a lack of prerequisite knowledge and experience is discussed later, and is a necessary control mechanism built into the functioning of our learning system. Please note that this is not a secreting or confidentiality mechanism. It is a material, safety control mechanism. A quick example of this is someone who has never driven a car before and is on their first day of a driver's education course. It would not be safe for them to sit behind the wheel during rush hour highway traffic conditions. Without prior training, there would not be sufficient proficiency of knowledge and skill to operate a vehicle safely in those conditions. This is an example of an evidence-based safety control mechanism.

Learners in our community generally take a single module at a time. Instead of being forced by an outside authority to handle multiple subjects at once [splitting their attention and their will], they may immerse themselves in as little as one, or more if they so choose, full-time modules for any pre-specified period of time (Read: module duration).

The Community's learning system makes a recommendation to the learner concerning the amount of time the system forecasts it will take the learner to complete the specified module. With this recommendation in mind, which is informed by prior knowledge of a learner's past experiences, a learner will then set their desired module-completion date and time goal based upon a reasoned expectation of how long they foresee the module taking. Over time, this action becomes second nature and becomes a useful measuring tool for individuals to gauge how rapidly they acquire, understand and integrate new material. It is a feature of the learning system to be capable of logging the amount of time a learner spends on a module. The learner can choose to enable or disable this logging capability. If the learner chooses to enable it, then the learner has the option to share or not to share the information. Time tracking gives the learner useful data for quantifying self-improvement. It also gives the community useful data for flagging modules that may need improvement.

For most modules, individuals work toward proficiency/mastery, which is indicated by completing a set of active problem-challenges in a row, unlike a test. This means that proficiency (or "mastery") can be achieved in minutes or hours, but the learner is learning through the entire process. There are no time limits or even estimates for how long it takes someone to obtain proficiency, and there is no final exam in which "you" can "fail". It should, however, be noted that there are some modules that involve the operation of technologies/processes which could be unsafe to the wider community if mishandled or if mistakes are made. At the conclusion of one of these modules, or "module series" (Read: a sequence of modules with an overarching objective) learners take a set 'knowledge and skills assessment' to give reliable information to the community (and to themselves) that they have achieved (or not achieved) the learning objective(s) of the module(s). After passing the assessment learners may safely operate the technology/process, or move on to a more advanced module that involves the technology/process. The assessment of certain learning objectives is part of the safety control mechanism mentioned earlier. These assessments may be retaken as many times as necessary, so the fear of failure or the urge to rush the learning is significantly lessened or non-existent (i.e., removed). Also note that the operation of certain technologies/processes may require periodic re-assessment on a scheduled cycle to ensure that proficiency has been maintained.

Although higher-level modules often have prerequisites, and learners are encouraged to take a broad-range of modules in different disciplines, learners choose modules based upon their own evolving and emerging interests. Herein, the learning system may

make recommendations to the learners concerning which module(s) might be a preferred next module (based on a variety of metrics, including observed interests, potential challenge areas, pre-requisites, skill set, and goals), but this system acts solely to support the learner in making an informed choice. This recommendation system could ease learners' regular entry into the flow state by supporting them in determining tasks/activities (and their qualities) that are of an optimal, individualistic challenge to skills ratio for producing flow. Another feature of the learning system is the ability of learners to recommend related materials (i.e., something found on a video hosting platform could be associated with the module as a recommended resource by other learners). Over time, as others review the modules, they can up-vote or down-vote materials, and the module algorithmically updates the presented content.

The form of learning described herein is also known as self-regulated learning (SLR). Under SLR conditions the learner has control over his/her own learning. The learner steers and directs their cognitive and motivation processes toward achieving their highest potential at their own desired pace and through [objective] selection via preference. At the present, we understand the most efficient form of learning as that which is characterized by definable and recognizable experiences, by self-directed characteristics. It is in the recognition of having these experiences and the integration of being in them through which our cognitive and physical abilities evolve.

3.1 Learning styles and memory

The ability to learn involves the capability of remembering, logically speaking. Skilled practitioners of memory show us, they demonstrate, that memory is visual, regardless of what people may believe about "learning styles". We can improve our ability to learn by looking at those who have deeply studied and practiced the skill of remembering. Therein, we may refine our approach and our visualization skills.

> **INSIGHT:** *The most important "style of learning" (for facilitating memory) is the intrinsically self-directed one.*

There is a significant lack of evidence that there are different kinds of "learners". A scientific assessment of the "evidence" for learning styles published in Psychological Science in the Public Interest (Pashler, 2009) conclude that the learning-styles hypothesis has little, if any, empirical grounding. Further, the very idea of a "learning style" becomes significantly irrelevant when the teacher-student paradigm is dismissed, and hence, "teaching styles" also become irrelevant. Individuals do not "learn better" when the instruction they receive is tailored to their preferred way of learning. Instead, individuals learn better when the learning is self-directed. In part, the idea of a "learning style" has persisted because in a school-type setting: Parents like to think that their children are receiving a tailored education, and teachers like to think that they are sensitive to each child's needs and motivated to find out more about how to fulfill this ideal.

Finally, in concern to learning, neuroscience tells us that memory consolidation occurs primarily during sleep and down time (a restoration phase).

3.1.1 Daily Routines

Humans have routines in their daily lives that they follow which maintain their lives on some [oriented] course. These daily routines may over time lead to the development of greater health, skill, understanding, flow, and appreciation, or they may be harmful patterns and can have the opposite effect. Over time, hurtful patterns can wear us down, make us unhappy and less functional. Daily routines can fashion and mold us into beautiful and intelligent compassionate beings, or they can break us down and cycle fear, and ultimately, disease. Yet, these routines do not just manifest out of nowhere; they come from within us, and also, from without (i.e., the material conditions, material life-radius access, and social influence). Routines are repetitions that rewire the brain and mind (as "learnings").

> **INSIGHT:** *A slight change in repetitious thought or behavior pattern can bring about major effects [in one's life and others' lives].*

The brain adaptively rewires (Read: neuroplasticity) itself through behavioral patterns. It has an almost inexhaustible capacity to rewire. It adaptively reroutes control of the way it uses various packets of neurons in order to help the human organism do the activities it regularly participates in.

3.2 Intelligent tutoring system (ITS)

> *A.k.a., Learning and artificial intelligence, AI tutoring agents, AI tutors.*

First, there were human tutors. With the advent of artificial intelligence, there are now intelligent tutor system (a.k.a., AI tutors) is a computer-enabled artificial intelligence system that aims to provide immediate and customized instruction or feedback to learners. Artificial intelligence (AI) collapses the distance between any question and/or problem someone has, and then, finding the answer as fast and efficiently as possible. Artificial intelligence will take over education, moving education from the textbook and classroom-teacher era to the interactive super-smart tutor era. AI presents the ability to have an interactive tutor, that knows everything that is known, and can guide users through any knowledge and/or skill set, at any point in time. Classrooms have to go at the pace of the slowest students, or the slowest students get sent to remedial classrooms. Here, the faster students are not served. The students with different interests are not served. Tutoring optimizes learning, by allowing learners to go at their own pace.

An intelligent tutoring systems (ITS) has two aims:

1. To provide appropriate and comprehensive instructional-type communication (advice) on a one-on-one basis:
   A. Knowing as much as can be known about the subject system.
   B. Providing information without bias.
2. To develop and test models about the cognitive processes involved in instruction.

3.3 Open and meaningful learning

Our community defines "open learning" as an approach to learning that gives the learner flexibility and choice over what, when, where, at what pace, and how they learn, and also, that there is no externally ordered or coerced target, outcome, or result that a learner must achieve.

For a moment, imagine the following: A student enters an educational institution and registers for a course. The background of the student is not taken into account. The institution does not know the types of experiences that the student has formerly had, the type of home life they have come from, the beliefs and value system they hold, and the extent of knowledge and understanding they maintain in long-term memory. Simply, educational institutions do not know their students. Said institutions then throw disconnected and often irrelevant materials and experiences at their students, and then, give them a standardized test. This commonly accepted [as normal] and established schooling process is irrelevant to meaningful learning, because meaningful learning is concerned with active participation and reflective engagement on the part of the learner. Most educational institutions are simply not designed to facilitate/produce meaningful learning. To a great degree, they are designed to produce people (Read: workers) who can mimic and duplicate. By making learning experiences open, our learning community establishes a system that supports individuals in pursuing learning experiences that they find relevant and meaningful to their lives, not to the lives of controlling outside forces.

Open learning exists even within the learning module's, for learners have the flexibility of selecting those learning activities, tasks and events that they find relevant and meaningful [in the context of a given objective]. There is no outside force applied to them in the selection or creation of a template (i.e., the defined series of learning experiences or activities).

3.4 Proficiency learning within the context of continuous education

It is commonly recognized that individuals learn at different rates (i.e., different paces). If learners intend to progress toward their own higher potentials, then they must be afforded an environment where conditions allow for individualized progress. The amount of time and effort learners' need to master a given objective will vary, and a learning system designed to support a community in developing toward its highest potential must account for this. The understanding that learners have different temporal needs when learning a subject matter is a core characteristic in what is commonly known as "proficiency learning".

Proficiency learning is most adequately defined by its four major associated principles:

1. **Principle #1:** Individual learners have sufficient time to acquire proficiency of specific learning objectives. It is a feature of the community to provided learners with a recommended completion date & time using an informed predictive engine. The predictive engine arrives at the recommended completion date based upon several factors of input, including but not necessarily limited to: past performance of the learner, current/predicted knowledge schema, the observed performances of past learners with the module, and other ongoing modules or activities the learner is participating in. Learners then set, if they so choose, a completion date & time goal for themselves, which may have no relationship to the recommendation engine's date & time. The setting of a 'timeframe' may be done for each module. If the completion date needs to be changed, extended or shortened, then this is generally always possible (i.e., it may not be possible when a module is scheduled among multiple participants). And, this information can be added to a personal schedule/calendar.
2. **Principle #2:** The subject matter to be learned is broken down into units of learning (i.e., modules, experiences and learning objects) with objectives for each unit. All learnable content is provided in modular branching (Read: tree like) form, which constitutes a systems knowledge map. Branched knowledge progression maps often look like trees with trunks representing core concepts and leaves represent modules. Here, each module (or, content + task) contains one or more learning objectives. Community is essentially a purposeful experience, wherein meaning generates goals, which subsequently direct tasks.
3. **Principle #3:** Learners demonstrate proficiency at each unit's objective(s) before moving on to other units. Learners may take an authentic/formal "knowledge and skills" assessment or an alternative requirement to certify to the community (where necessary) that they have achieved proficiency of some information or task. Also, the learner may need to re-assess at some periodicity. Again, for

our community, this is an inherent safety control mechanism to maintain the safe continuance of our society, and it is not applied to every module. Note, that this principle isn't embedded into the learning system itself. In other words, it isn't designed into the learning system to restrict learners from progressing to other modules if they haven't achieved proficiency at a given module. Here, "we" recognize the necessity for proficiency of a given task before moving on to a more complex information set. As "we" move on in our education, we achieve proficiency in different ways, which facilitates mastery over time in a given subject.

4. **Principle #4:** Learners' assess their progress and receive feedback and guidance where necessary or available. Many of our community's computerized learning modules provide continuous feedback. End of module (i.e., subsequent or "summative") feedback is sometimes provided. Feedback may be entirely automated or it may come in the form of facilitator or guide, or in form of the individual checking their own work. But primarily, it comes in the form of sensation from a responsive environment. Human facilitators and subject matter experts are available for feedback and re-mediation when necessary.

3.5 Community education

The individuals in our community learn, play, grow, and work together as all pursue their highest potential through the opportunities provided by the synergy of cooperation. Herein, we recognize that there exists self-benefit through the interplay of action, interaction, and reaction with a community of those who have similar interests, curiosities, and goals. Humans are social beings with a vast potential for learning from one another. Individuals that recognize this necessity for connection will seek to better the community because in so doing they better themselves.

Community learning is not teaching: it is not the teaching or selling [of anything] to an audience. A community is a space where like-minded people can come together and share with each other things that matter to them, while they design and engineer things that benefit them. With an "audience" there is a sense of removal, of artificiality, and of persuasion -- there is a disconnect. There are experts and students, not learners. It is a sense of being "talked at". Whereas with a community, there is a sense that we are "all in this together". No one is above the other, we are here to help each other, and we care about things together. An audience is passive, a community is active. An audience is entertained or not; whereas, a community is actively involved.

Imagine having a relationship with a community that supports you and fulfills you. In community, we are supported to maximize a maintained movement toward our highest potentials. We create a space where ideas can mingle and swap, and evolve to create more fulfilling forms. Here, we are continuously evolving our spaces and information systems to make it easy for people to find one another and share information and creative works and tools and tasks.

In the community, many people's days are highly taken up with participation in multiple communities of practice.

3.5.1 Communities of practice

In community we get together and share and practice forming a structure of peer-to-peer education -- we share with our peers and learn from our peers. Communities of practice are groups of people who share a concern or a passion for something they do, and learn how to do it better as they interact regularly. Communities of practice exist both offline and online. Communities of practice are not a new phenomenon: this type of learning practice has existed for as long as people have been learning and sharing their experiences through storytelling. A community of practice is essentially a group of people practicing something in some form of a "gathering". A group of interest is simply a group of people sharing information of a particular topic of interest.

Etienne Wenger et al. (2002:4) define a communities of practice as:

> *"Communities of practice are groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly."*

3.6 The one-room school house model

Learning within an open community has some similarities with the historical schooling model known as the "one-room schoolhouse". The one-room schoolhouse is the name given to the space in which some cultures have historically (as youths) learned in a formalized manner. The concept is now more commonly known as a "multi-age classroom" or "multi-age learning environment". It is essentially a space where learners, who are diverse in age and experience, get together and pursue learning activities where they facilitate each other's progress.

In many historic cases of the presence of a one-room schoolhouse, the majority of "teaching" was actually not done by the "teacher" overseeing the space, but was instead done by older students, who were more advanced, helping younger students with their lessons. Younger students also learned by observing the more advanced lessons being given to older students by the "teacher". Although schooling still occurred here, if someone was slow or had a problem, it was another student that was responsible for helping when the teacher (or "facilitator") was busy. Sometimes even if

the sole teacher wasn't available, it would be another student who was responsible to provide assistance. Traditionally, the basic structure of a multi-age learning environment is one in which the teacher views the entire class as one learning community, and students stay with the same teacher for more than one year.

In some cultures the one-room schoolhouse served as a center of rural town activities, a place where parents gathered and shared information. Learning has not always been isolated in our history, but was typically considered a part of the community (or "tribe" / "village"). The one-room schoolhouse is described and discussed at length in John Taylor Gatto's authored work, "The Underground History of American Education".

3.7 Task- and project-based learning

In the community, a project-based approach to learning focuses on the exploration of real-world problems and challenges, while simultaneously developing interdisciplinary skills through individual practice, or through participation on a systems team. Because project-based learning is filled with active and engaged learning, it inspires individuals to obtain a deeper knowledge of the topic they are pursuing. Project-based learning is essentially a form of task-based learning where tasks are defined, completed, and integrated [through a "project or "mission"]. Task complexity (within the scope of a project) is broken down into manual skills and cognitive intelligence.

Here, the idea of 'mission-based learning' is similar to project-based learning with the transposition of the notion of 'mission objectives' in place of 'project objectives'. The terms 'project' and 'mission' are similar, but may have slightly different meanings depending upon the specific situational context. A 'mission' is essentially a declaration of a purpose; however, the term also applies to an assignment (or objective) given to someone (or to a group) by an authority that expects compliance.

At a basic level, most projects involve organizational skills, discovery and analysis skills, and communication skills. Learning within project-based environments is often based on one or more of the following:

1. Adding to one's knowledge schema.
2. Consideration of future projects and new or rekindled interests.
3. Assessment of the success of the project.
4. Self-evaluation and reflection.
5. Documenting what occurred.
6. Producing something.
7. Accomplishing the goal of the project

3.7.1 Goal setting

Just the act of setting a goal has been shown to increase performance. And, setting "big" goals is important; it is just easier for our cognition to process a complex goal when it is broken down into tasks (or "chunks"). The "quantitative self" metrics that matter are those that measure your progress towards a well-defined goal. If you can't measure it, then it is likely not understood. Even the five sensations we are familiar with (i.e., touch, taste, and so on) are a form of measurement.

3.8 Informal learning

Informal learning is widely used to describe the many forms of learning that take place independent from an instructor or teacher, through direct and often real-time experience. Informal learning is not formal learning, which involves a pre-design of the learning experience. In essence, informal learning is everything that is not formal learning (Read: that with a predefined curriculum and time frame). The way you learn to speak your native language is a pure example of informal learning. Informal learning occurs all the time. It is the primary means by which most people learn. Even in early 21st century society, which applies a schooling model, more learning occurs in informal learning environments than in formal learning ones. It is commonly understood that approximately 80% of learning about a job is actually accomplished through informal learning while on-the-job. In fact, informal learning is occurring to everyone all the time. To not remain aware of this fact is a dangerous thing.

"Social networks" are vital to informal learning for they allow for the communication of knowledge, understandings and opinion from one individual to another. Hence, the Community's infrastructure has necessarily been designed to facilitate communication, connection, and sharing. Conversation is incredibly important, and we tend to want to encourage conversation to transfer and reinforce learning.

3.9 Interdisciplinary learning

A community-type society supports individuals in contributing to and benefiting from a wide-variety of disciplines, which are perceived together as an integrated whole. Herein, the term 'interdisciplinary' implies that methodology and language become efficiently communicated and integrated between disciplines (i.e., from more than one discipline) to examine a central theme, topic, issue, problem, or work. Every complex system can be categorized by those subjects or disciplines which structure the language from which the system is built.

An interdisciplinary approach is a collaborative approach because it necessitates cooperative activity and information flow between disciplines (or knowledge/skill areas).

> **INSIGHT:** *Within a community-type society, individuals connect and seek relationships regardless of discipline. They explore connections regardless of discipline. In this sense, nature is a systematic network of*

potential knowledge that is available at all times for integration by consciousness.

3.10 Experimental failure

INSIGHT: *Being wrong might be right if it keeps you moving. Is there the space for being wrong in your society's educational system?*

Failure is useful for it represents an opportunity to develop ourselves further. It is our fundamental understanding that through the frequent testing of our limits, and failing, that we experiment and learn. In other words, we understanding that we learn through experimenting, through the frequent testing of our limits, and through our failings (or failures). We recognize that spectacular failures lead to spectacular learning. Failing is neither embarrassing, nor discouraging. Also, in virtual learning environments we can fail time and time again without any other human knowing or caring. Learners in our community fully understand the necessity of failure in exploring, experimenting, and ultimately, learning.

There is nothing wrong with failure; it is where we acquire our experience. And of note, there is nothing wrong with criticism. We shouldn't be ashamed if someone (a critic) points out a technical or scientific issue in regards to our understanding (learning) of something? We are all sufficient in our process of learning. We are all learners; it is innate in all of us, and there is still a great deal more to learn.

3.11 Possible learning methods and strategies

In the learning community we recognize that there is no single, universally applicable learning method or strategy. In some cases a single strategy is most appropriate and in other cases a blended combination of strategies is ideal. And, in state of play or "flow", often if there is a strategy, then it is applied seamlessly, almost effortlessly.

In terms of the learning system as a whole, it is impossible to build a single learning solution that fits the needs of all learners. Real complexity is a requirement for a learner-centered, systems-based approach, an essentially personalized approach.

The following learning strategies are only suggested strategies. They are suggested due to what we now scientifically know of how and why we learn (in the context of our value system). These strategies are essentially learning design / selection strategies formed by what we know, and also by our value orientation. They are recommended suggestions in concern to the design of learning modules and their accompanying activities, events, and experiences. These learning strategies, when applied appropriately, are highly likely to facilitate high-quality learning under intrinsically motivating conditions. You will not find a single method, strategy, or philosophy that serves the needs of so many diverse individuals who have different needs, desires, curiosities, aspirations, and varying strengths. Our learning system is not a "one-size fits all" system. Our learning system is emergent, encompassing, and fundamentally, self-directed. We, as learners, desire to customize our learning experiences while we also learn from the experiences of others.

These are just some of many ways to learn in a more formal manner an objective ("over the course of a curriculum"). These methods and strategies provide a high potential for facilitating the acquisition and integration of knowledge, skills, and behaviors by learners in an effective, efficient, and intrinsically engaging manner.

3.11.1 The construction strategy

A.k.a., The constructivist method, the self-betterment construction method, the natural learning method.

The construction strategy is based on the 'constructivist learning theory that holds that learning always builds upon knowledge that a learner already knows; this prior knowledge is called a "schema". The theory suggests that because all learning is filtered through pre-existing schemata, learning occurs when a learner is self-directed and actively engaged in the learning process, constructing a better model of the world and better skill precision within it, rather than attempting to receive knowledge passively (i.e., through teaching and/or schooling).

The following constitute the strategy's four primary principles:

1. **Principle 1:** Anchor all learning activities to a larger task or [real and responsive] problem.
   A. The purpose of the learning activity or lesson must be relevant to the learner in order for the learning task to be successful from the learner's perspective; its purpose must be clear to the learner and accepted by the learner.
2. **Principle 2:** Design or select an authentic (intrinsically chosen) task.
   A. Tasks are authentic in their cognitive demands. Maybe the task has real consequences. Learning should occur in environments and under conditions that present the learner with the same type of cognitive challenges and physical demands as the authentic real-world environment (i.e., authentic in their cognitive and physical demands).
3. **Principle 3:** Select a focus of intention (i.e., "objective").
   A. Learners set goals and regulate their own learning, through which they live in alignment with a deeper integration.
4. **Principle 4:** Design the learning environment to

support and challenge the learner's thinking and response.

A. Learning environments are designed to promote immersion and engagement while supporting and challenging a learner's thinking. Facilitators and others play an important role by encouraging critical thinking and coaching (where desired).

The self-betterment construction methods ensure the replication of a real-world, authentic learning environments. It should be self-evident that an appropriate redesign of the expository instructional environment toward a more authentic and problem-based learning environment (including interactive 3D / simulation-based learning) not only supports learner satisfaction, but it ensures a stronger connection between the learning that occurs in the community and the tasks and responsibilities that may be required of learners outside of the community. Computing technology can facilitate just the right amount of challenge, through algorithmic programming, to keep a learner engaged and learning a subject matter for a [learner's] chosen amount of time.

When individuals select their own learning activities it is wise to anchor them to a larger task or problem [in their life], which is commonly understood to increase feelings of both relevance and satisfaction in learners [by increasing the meaning and connection the learners experience with that which they do].

Fundamentally, one's current understanding is constructed from experience based upon prior understanding. It is often stated that wisdom is the product of knowledge + experience.

3.11.2 The trivium method of organization

NOTE: *The Social System describes the Trivium Method in full. The method is a component of the social approach of a community-type society.*

The Trivium, the first three of the seven Liberal Arts and Sciences, is both a method and a selection of content used to support the mind in learning and thinking systematically without contradiction. It benefits us as individuals and as a community in deriving certainty while arriving at ever greater approximations of truth with any information coming in via the 5 senses. The Trivium, by its very nature, is a systematic method of learning and discernment. The method serves multiple purposes, among which is its ability to verify an intuition or hunch. The Trivium is intrinsically related to the process of critical thinking. It is a simple stepped process and has been given many names over the centuries.

The Social System describes the Trivium Method in full. The method is a component of the social approach of a community-type society.

The Trivium (Latin for "three ways") is the core of what was once known as a "classical curriculum". It is believed to have been developed by ancient Greek philosophers [though forms of it date back further] and practiced during Greco-Roman times. It is likely that the Vedas had a similar system. The Trivium curriculum was formalized in the medieval period and nearly universally embraced by teachers in the English-speaking world until the early 20th century. Although the Trivium Method is traditionally a teaching method for children, it may be applied to the process of learning at any age level and with any subject matter. Every system, every subject matter, has a grammar, a logic, and a rhetoric.

The Trivium recognizes three developmental stages of comprehensive learning: grammar, logic, and rhetoric (in this order). A Trivium-based learning method organizes learning around the maturing capacity of an individual's mind (their knowledge, understanding, and cognitive skills) by using methods and materials specific to each progressive, spiralling stage of development. When used in this configuration, one's thoughts shuttle back and forth, up and down the focus stages of the Trivium in an attempt to discern and communicate ever greater approximations of reality.

The purpose of the Trivium Method is to support an individual in becoming intellectually independent and self-reliant (i.e., "intellectually self-sufficient"). A Trivium-based approach is sometimes discussed in contrast to an outcomes-based education (i.e., outcome-skills based). An outcome-based education (OBE) generally teaches rhetoric level skills without teaching the basic grammar and logic level skills. With standard outcome-based education, externally expected results (i.e., those standards and results that teachers, parents and politicians expect) may be obtained faster, but they are often shallow, short-term, and create collective minds that perceive themselves incorrectly, sometimes with a sense of deficiency.

The three roads of the Trivium offer three insights for learning. First, every discipline has a "grammar": the organizing factual data (a coherent body of knowledge) on a particular subject, known as "general grammar". Logic refers to the systematic arrangement and relationship of factual data in a non-contradictory manner. And a rhetoric, which concerns the means by which it is most cogently and appropriately applied and communicated – its stories, discourses, and applications. Second, any topic can be learned (or taught) in a way that includes its grammar (that which exists – factual knowledge), its logic (cause and effect relationships, scope and sequence, and rationale), and its rhetoric (communication and implications). Third, the Trivium affirms the developmental nature of learning – that is, learning progresses in iterations and the learning process is best tailored to each iterative stage.

The Trivium Method is roughly equivalent to a community-type society's Social Domain, as composed [in part] of data, knowledge, and values:

1. The 'grammar' is the 'data'.
2. The 'logic' is the 'knowledge' involving the data and

its complete relations set.
3. The 'value' is the 'rhetoric', which explains why and how individuals share, communicate, and create together.

Because the Trivium Method necessitates the verification and understanding (i.e., grammar and logic) of information prior to the information's communication (i.e., rhetoric), it is reasonably effective at reducing the dissemination and accepting of falsehoods (i.e., the learners' exposure to information that if properly checked would be shown to be false). Thus, its application generates a more efficient learning process by reducing the noise within the learners' learning space. Further, with this systematic method of discernment learners always know to dig back down into the grammar and logic of a subject when instruction is being provided (i.e., a teacher is teaching) to ensure that what they are being taught is the presently knowable truth, and the most valid and logical conclusion with all the available data.

The Trivium, as a functioning system, always teaches the user to return to an examination of the data when contradiction precludes a logical conclusion. It also tells the learner that they must go back and recheck the whole information system when more data becomes available.

There exists an understanding that humans make errors; those errors in thinking and acting are a natural part of the learning process. Through error correction we can correct our patterns. When the Trivium Method is applied, errors are recognized and instead of stagnation, a continued movement toward truth occurs; setbacks are seen as opportunities for further development and integration. When the Trivium Method is applied appropriately, one's thoughts flow in a coherent manner between the Trivium's stages (or nodes) in search for the truth relative to the known information system. Similarly, the idea of science is to look at the available evidence and then always look for new evidence. If someone is holding on to a single idea, then they are effectively putting logic before grammar, which is neither the scientific method nor the "trivium method", and will flat-line self-development.

The three stages are most easily represented as:

1. Knowledge [or grammar].
2. Understanding [or logic].
3. Wisdom [or rhetoric].

3.11.2.1 The **grammar** *stage*

During this stage individuals learn the facts (or "general grammar") of a subject or task. Under the Trivium Method this is traditionally done through memorization and drill. It is important to recognize that memorization and drilling can be made enjoyable and often young children have a natural fondness for such activities - think of those who repetitively use their body in a way that they enjoy such as any sports practice. To "drill" is just to practice. However, the grammar stage can be blended with numerous other learning methods in an effort to create a fun and engaging learning experience.

General grammar answers the questions of who, what, where and when of a subject under study and concerns the discovery and ordering of the objective facts of reality to form a basic, systematic knowledge set.

3.11.2.2 The **logic** *stage*

An individual's capacity for abstract thought expands rapidly. At this stage the learner becomes attracted to reason and abstraction. The introduction of logic shifts the focus from mere facts to the understanding of relationships (conceptual and mathematical). Individuals learn to reason as they identify critical assumptions, logical fallacies and inconsistencies. Through the logic stage the faculty of reason and the actualization (or integration) of non-contradictory relationships is established, which reveals a fully systematic understanding of the thing being dealt with.

The art of logic is the art of non-contradictory identification. Logic answers the why of a subject. It is important to note that without having a solid grasp of the general grammar of a subject, then how do you know exactly what you are understanding?

Having explicit knowledge of the fallacies enables the identification [via explicit knowledge] of the exact type of falsehood being used against someone, and it provides the ability of expressing (or explaining) the specifics of the uncertainty generated by the use of the fallacy to others (i.e., intellectual self-defense). This is an especially useful faculty for all learners. Sophistry ("sophisticated") behavior exists. Sophism is the intentional use of fallacies to "win" an argument regardless of grammar or certainty.

3.11.2.3 The **rhetoric** *stage*

Grammar and logic are now integrated into communication and problem-solving. In experimenting and designing learners develop clarity and beauty of expression in addressing vital and sometimes controversial issues and philosophies.

Rhetoric is the *how* of a subject. A rhetor will ask, "How is the grammar and understanding of a subject best communicated and applied?" Thus, rhetoric concerns the application of knowledge and understanding expressively, which composes wisdom. Note that inherent in the rhetoric stage is the proper choice of means and methods for cogently expressing the conclusions of the grammar and logic of a subject.

In the market, rhetoric is generally seen as a synonym of persuasion, maybe with evidence. In a more general sense, rhetoric is determining the best way of communicate an idea to another.

Fundamentally, if something cannot be explained, then it is likely not understood. If something is not understood, then it is likely that the comprehension or breadth of its grammar is not sufficient. Therefore, when something cannot be fully or appropriately explained,

under the Trivium Method, it is prudent to return to the grammar stage before preceding forward once again. In other words, if someone doesn't understand a subject (logic), then they likely don't know enough about the subject (grammar), which may necessitate further inquiry and discovery. One might gather more "grammar" through additional study, research and/or discovery, (i.e., all the available data), then one might remove the contradiction for the purpose of integration (logic), and finally, one might seek its cogent re-expression or re-explanation. For true rhetoric, true wisdom, is pure signal and void of noise.

3.12 Playful learning and appropriate challenge

> **APHORISM:** *If you don't love it, you'll never work hard enough to be great at it.*

Play is nature's learning engine. It is therefore terribly unfortunate when play is painted as a negative or placed in contrast to the "work" or "effort" of learning. When we look at the mechanics of play, it is fundamentally the act of deploying the scientific method toward learning in its most natural form through which a state of flowing engagement is formed with the natural world – hypothesizing, testing, retesting, improving, and enjoying. Fundamentally, if you are playing, then you are likely learning. If you are not playing, then you are likely not creating long-lasting and integrated, meaningful learning. We view the abundance of play as true freedom. The term 'play' is generally used to refer to children when they are in this state. And, the term "flow" is generally used to refer to adults when they are in this state. Quite possibly the two words might be connected to describe a 'playfully flowing' state of experience.

A playful learning design strategy selects for an environment where the learner is energetically explorative and curiously interested in solving a problem or pursuing a purpose. Playful learning is in effect, learning through the act of playful exploration. Playful learning is itself an excellent facilitator of intrinsic motivation. In other words, the space and opportunity to play increases our internal incentive to play. The Rat Park study discussed in the Social System specification relates to this understanding. It is important to recognize, however, that within an environment that accommodates play, it is relevant for learners to develop a sense of metacognitive reflection on their actions and activities. In other words, not all play includes learning, though it is our preference that all learning includes play.

Learning is more than the accumulation of data, especially in a society where the Internet and online reference and troubleshooting guides are at everyone's fingertips. In community there are no artificial barriers (e.g., pay walls) to learning. This perspective has empirical support from the field of neuroscience, which shows that the brain is changed more so through active experimentation, rather than by a teacher-centered pedagogy.

Playful learning may be differentiated from "edutainment". Edutainment activities typically blend entertainment and education. At least one complication with edutainment includes the way that creators of edutainment products tend to think about learning and education. Too often, they view education as a bitter medicine that needs the sugar-coating of entertainment to become palatable. Further, edutainment activities are often not complimented with metacognitive reflection. In an edutainment environment, entertainment is often provided as a reward for suffering through "education" (Read: extrinsic motivation).

James P. Carse (2013) observed in Finite and Infinite Games,

> *"It is an invariable principle of all play … that whoever plays, plays freely. Whoever must play, cannot play."*

In other words, if someone is forced to do something, by definition, it ceases to be play; therein, one might ask themselves, Do you have to get your playing done now, so that you do not lose your chance?

When you seek to explore and to answer questions freely, of your own volition, and not because you are obligated to, then we say you are "curious". But curiosity does not immediately imply you are going to play. Play involves something else — play involves willful action, usually a willful action of touching or changing something — manipulating something, you might say. So, one possible definition of play would be: Play is manipulation that indulges curiosity.

3.12.1 The concept of "entertainment"

The concept of entertainment relates closely to play, because play is often mis-categorized (by authorities), as entertainment.

Entertainment has the following simultaneous meanings:

1. **To entertain** a guest means to bring him/her into your house. To get together with others, relax together with others, and share together with others is a form of entertainment of others. This is a form of play.
2. **To entertain** a thought means to bring it into your mind. To have and/or be given an idea, and then critically integrate it into one's developing/-ed model of the world (the real-world). This is a form of play.
3. **To be entertained** means to be brought into something external (e.g., television programming). To be entertained means to be removed from yourself and the world, and placed in a fantasy, temporarily. When television and/or media creators

do this successfully it is applaud it as "entertaining". Yet, craving to only be entertained points to the impoverishment of complete fulfillment in a society. Without excess, being entertained can be playful; however, with excess, being entertained can be a sign of a socially isolating (and hurtful) societal structure.

3.13 Experimental learning

Aristotle once said, "For the things we have to learn before we can do them, we learn by doing them." Experiential learning is learning through reflection upon doing, which is often contrasted with rote (or didactic) learning. Experiential learning is related to, but not synonymous with, experiential education, action learning, adventure learning, free choice learning, cooperative learning, and service learning. While there are relationships and connections between all these methods of learning, they all have slightly different meanings.

Experiential learning focuses on the learning process for the individual (unlike experiential education in an institutional setting, which focuses on the transactive process between teacher and learner). An example of experiential learning is going out in nature and learning through observation and interaction with the things in nature, as opposed to reading about animals and plants from a book. Through experience we may experiment and discover knowledge firsthand, instead of hearing or reading about others' experiences.

Experiential learning requires no teacher and relates solely to the individuals process of direct understanding and integrating an experience. According to David Kolb, an American educational theorist, knowledge is continuously gained through both personal and environmental experiences. He states that in order to gain genuine knowledge from an experience, certain abilities are required:

1. The learner must be willing to be actively involved in the experience;
2. The learner must be able to reflect on the experience;
3. The learner must possess and use analytical skills to conceptualize the experience; and
4. The learner must possess decision making and problem-solving skills in order to use the new ideas gained from the experience.

Experiential learning can be a highly effective learning method. It engages the learner at a more personal level by addressing the experiential needs, wants and preferences of the individual under the condition of experience. Experiential learning requires qualities such as self-initiative and self-assessing. For experiential learning to be truly effective, it should employ the whole learning lifecycle, from goal setting, to experimenting and observing, to reviewing, and also, action planning.

As stated by the ancient Chinese philosopher, Confucius, "tell me and I will forget, show me and I may remember, involve me and I will understand."

3.14 Problem-based learning

A.k.a., Project-based learning.

Problem-based Learning is a method of learning that stresses problem-solving activities and the arrival at solutions as a means to develop and apply knowledge. The learner is initially confronted with (or inquires into) an interesting and relevant problem that requires a solution. The problem itself drives the activities and learning tasks. Instead of proceeding from the abstract to the concrete via a more traditional educational strategy, learners experience for themselves the process of arriving at a solution to the problem as they identify requirements and test their engineered solutions. Problem-based learning can be a solitary endeavour, but it is often done within a collaborative [team] environment.

Learners often select problems that exist within their own lives, as the content to which they apply the problem-solving methods. Thus, they learn while improving the total society around them. Here, learners make meaningful connections between themselves and the community. Learners build upon prior knowledge and skills while they work to solve authentic, relevant issues facing themselves and the society of which they are a part.

The individual (or group) formulates an understanding, an analysis of the problem and key questions which have to be answered in order to "solve" it. They collect data and analyze it for relevancy prior to synthesis and the arrival (or calculation) of a tentative solution [and not an opinion]. They then work to articulate the solution so that it may be tested to see whether it solves the problem. A solution might then be disseminated to the wider community. Depending upon the context of the problem, the learner(s) may apply the solution in real-time and assess/evaluate its results.

The learner is the primary agent of his/her learning in a problem-based environment with possible guidance and support from a facilitator, or even, the community as a whole.

3.15 Game-based learning

Games involve problem-solving and one is hard pressed to come up with a game that does not. Any game with a goal effectively has presented you with a problem to solve. A game is a problem-solving activity, approached with a playful attitude.

Games are also a form of play and have the innate capability of inducing a state of flow in those participating in them where skill and challenge match one another and learners become so focused that they experience a loss of time perception. It is often during this experience of

flow that gamers rapidly develop and evolve those skills which they are applying. Although a game is something you "play".

3.16 Case-based reasoning

Case-based reasoning (CBR), broadly construed, is the process of solving new problems based on the solutions of similar past problems. An auto mechanic who fixes an engine by recalling another car that exhibited similar symptoms is using case-based reasoning. Under case-based reasoning, an individual works through a significant number of cases in order to learn how to respond effectively to various situations and future cases.

3.17 Simulation-based learning

Simulation-based learning (SBL) is comprised of a computer-based learning environment that simulates in an interactive and dynamic manner both abstract concepts and complex processes. Simulation-based learning has emerged as a model implementation of interactive, real-time, photorealistic visualizations for the presentation of and interaction with information. Simulation itself is a technique for practice and learning that can be applied to many different disciplines. It is a technique to facilitate the experience of elements of the real natural world in an immersive manner that would be impossible, difficult, or dangerous to experience otherwise. Virtual immersion is intended to replicate substantial aspects of the real world in an interactive fashion. With simulation-based learning and immersive hardware, learning experiences become increasingly like real world physical experience.

Simulation-based learning environments are typically highly interactive and permit learners to change input variables, manipulate visual objects and perspectives, and view the results of changes in parameters in real-time. Simulations are generally aimed at establishing an active learner environment.

Today, interactive 3D / dynamic perspective technology provides a highly interactive and spatial environment for simulation-based learning. One example of this is a simulation that illustrates the contraction of the bicep muscle in a manner that permits the learner to both visualize and experiment with influential variables in the process in real-time. A flight simulator is another example.

The following are some characteristics of the applied technology of simulation-based learning:

1. Simulated learning environments provide learners with as much reality as necessary and technically possible to give them the "hands-on" experience they need to learn real skills. Simulation-based training techniques, tools, and strategies can be applied in designing structured learning experiences, as well as used as a measurement tool linked to targeted learning objectives.
2. Simulated environments are scalable. Because, it is a simulation.
3. Simulated environments are flexible. Because, simulated environments are a digital recreation of the material [technology] that they represent, they can be technically re-configured in a large number combinations. In early 21st century society, an instructor might have to literally break something on a machine so the student could diagnose the problem and then fix it. And, to manufacture and configure complex technical machines for many learners for one simple exercise may be inefficient when simulation technology is present.
4. Simulated environments are portable. With the advent of the internet the ability to provide hands-on experience at a distance is now possible.
5. Simulated environments are a safe option when working with the real thing provides unnecessary risk. Simulation solutions are a safe and responsible way to train. Simulation-based learning helps to mitigate errors and maintain a culture of safety. With a simulator, dangerous and sensitive tasks may be trained for in a safe and flexible manner.
6. Simulated environments allow learning and re-learning as often as required to correct mistakes, permitting the learner to perfect steps and fine-tune skills. Human performance is strongly influenced by the ongoing situational context (i.e., the interaction between the task, the environment, and behavior), and simulators virtually facilitate the maintenance of a realistic context.
7. Simulated environments are designed for learning. Learning scenarios can be reset and practiced over and over again. Technical processes can be artificially slowed down to demonstrate difficult concepts or time consuming processes can be sped up to not waste time waiting for the process to be completed.
8. Simulated environments are updatable. When you consider the cost of technology and the rapid rate of technical obsolescence, it is obvious that digital environments are uniquely more easily updatable, and therefore, sustainable, than their physical counterparts (i.e., material duplicates for a great number of learners).

The features of a simulation that best facilitate learning include, but are not limited to:

1. The ability to provide feedback.
2. Repetitive practice.

3. Information system integration.
4. The ability to range (i.e., set, modify, and control) the difficulty level.
5. Engagement and enjoyment.

The benefits of simulation-based learning include, but are not limited to, the following:

1. Deliberate practice with feedback.
2. Exposure to uncommon events.
3. Reproducibility.
4. Opportunity for assessment.
5. The absence of risks.
6. Parameter modification.

Simulation Based Training is ideal when:

1. A piece of equipment is hidden or inaccessible to the learner.
2. An object is dangerous or difficult to manipulate in reality.
3. An object is too small and needs to be shown in great detail.
4. A process must be visualized [with spatial information] to be effectively understood.
5. When the technology is available, and the learning strategy is conducive.

3.17.1 Simulation games

Simulation games are a practice associated with both interactive 3D (i3D) and simulation-based learning (SBL). Simulation games used for learning (i.e. "serious simulation games") engage learners as active participants in an immersive gaming environment. Designers must realize that it is not a necessity for simulations to have explicit goals, and many simulation games are open-ended in that they contain a flexible virtual environment where players define their own goals. It is also important for learning designers to understand that the primary role of a simulation is for it to be a highly realistic representation of some chosen reality; however, this is not the function of games, which out of necessity use restrictions and challenges to create and maintain playability.

3.17.2 Game design considerations

It is not sensible to design a game that baits learners into doing things while disregarding their movement toward greater skill acquisition. If badges and rewards aren't actually built on a basis of real learning, real accomplishment and real skills development, then the rewards will wear off and the badges will wear away. We will be left with a sense of loss for what we could have accomplished together, instead of set in opposition to one another.

Well-designed games often have the following elements in a particular balance for a particular learner or group of learners:

1. Objective – the goal.
2. Outcomes – what do I win, what if I do it right, what happens.
3. The activity itself, what is the activity.
4. Player profile – who is this person, what drives them (psychological or personality profile). The things in the middle are the skill cycle, the things that are done repetitively.
5. Actions – what can you do.
6. Black box – The formulaic arrival at an alignment off/on (by degree) of the "optimal" or "correct" decision/action. In concern to a game, it is the coding.
7. Feedback – the thing that gives you points or lets you move ahead or gives you more ingredients, or whatever the case may be.
8. Skills, what skills are you learning – spatial reasoning, hand-eye coordination, cognition, memory.
9. The resources that you have to apply, the inputs. Limiting resources in this context creates a drive for efficiency.
10. Resistance– uncertainty is key to a game experience. You are on the hairy edge, will you win, spontaneity.

What are some key qualities (or elements) of games? Games are entered willfully; games have goals; games have conflict; games have rules; games can be won and lost; games are interactive; games have challenges; games can create their own internal value; games engage players; games are closed, formal systems.

3.18 Effective practice and deep practice

> **QUESTION:** *How do you know you are passionate about something until experience it (i.e., "try it")? It is after an initial exposure or experience that the passion may develop.*

Among a community of learners we desire to know more greatly how high-level performance is developed. Certainly, there are ways of practicing that are more effective and less effective at achieving goals. Research shows that the way individuals practice skills, and the amount of practice they do, largely explains differences between top performers and others (given that there are a wide-variety of other factors that influence how rapidly and precisely a task is capable of being performed at a high level). The concepts of 'deep practice' and 'deliberate practice' are two similar ways of describing the process of 'effective practice' (i.e., practicing effectively so as to develop efficiently toward high-level performance). Generally, all forms of effective practice resemble each other and have just been given different names by different market entities promoting what is basically

'effective practice'. And, the approach that leads to the application of effective practice principles might be more broadly labelled as a "progress-focused"approach or "error-focused" approach. In other words, in effective practice an individual practices, determines errors, and then corrects for those errors as they progress [in improving their performance of a task].

Deliberate practice refers to effortful activity designed to improve individually targeted performance. It consists of the following four elements:

1. It is designed specifically to improve performance.
2. It is repeated frequently.
3. Feedback on results is continuously available.
4. It is highly demanding mentally, and not necessarily particularly enjoyable because it means you are focusing on improving areas in your performance that are not satisfactory (i.e., it is challenging). Thus, it "stretches" (challenges) you.

No one needs talent; great performance is available to everyone [through precision of effort qualified by technical mechanics]. Talents is, in a sense, overrated. People carry around beliefs and myths about what great performance is. There are plenty who work extremely hard and are not great performers and vice versa. Deliberate practice is a method for developing better performance. Deliberate practice is:

1. An activity designed expressly for you at this moment of development.
2. The activity will change as you get better.
3. The activity pushes you slightly beyond, just beyond, your current abilities. Not too far so you become confused, and not too little so you don't grow. And, not too far so you don't injure yourself.
4. The activity is repeated at high volume, high repetition, in flow, etc.
5. The activity includes [continuous] feedback, [constant] feedback that is telling you how you are doing, so that you can navigate and course correct.

Here, passion provides intense mental focus = getting better faster. Passion drives deliberate practice in time. Daniel Coyle (2009) describes a way of effective practice in the book *The Talent Code*, which he calls 'deep practice'. Deep practice is a way of attentive practicing which closely resembles deliberate practice. Deep practice has three principle rules; and, the first rule identifies the three steps to the deep practice system:

3.18.1 Rule 1: Perceive system and data

If data comes in packets and systems are wholes, then the first steps to deep practice are:

1. View the whole system (i.e., absorb the whole thing; see the big picture). Take the task as a whole – one big chunk – a mega circuit.
2. Break up the system/task into the smallest possible chunks. Make small fragments/parts. Remember them. Then, link them together into progressively larger groups.
3. Play with time: first slowing the action down and then speeding it up. Slowing down helps with attending more closely to errors, creating a higher degree of precision.

3.18.2 Rule 2: Repeat procedures

Repetition (in the context of a task and a degree of intelligence) is invaluable and irreplaceable, with some caveats. First, stay at the edge of your abilities. Also, 3-5 hours of daily practice is generally the human limit. Repetition (performance) has the effect of deepening the likelihood of retention. Hence, it may be better to become proficient, and then move on to other activities, while receiving prompts over time to reassess skills and knowledge, which reinforce the memory/skill.

3.18.3 Rule 3: Learn to feel

To avoid the mistakes, first you have to grow to feel them immediately. "An out-of tune note should bother you ... a lot," states Daniel Coyle (2009). High-level performers often describe their most productive practice with the following descriptive words: attention; connection; build; alert; whole; focus; mistake; repeat; tiring; edge; and awake. The following words were never used as descriptors: effortless; natural; routine; automatic; and, genius. When we struggle, it feels like a struggle. And through struggle, we develop skill that may be applied toward a greater experience of "flow" in our life.

Embedded into the idea of 'deep practice' is the notion of 'ignition'. The term 'ignition' is something of a metaphor for the burst of awakening that leads one to passionately pursue the practice of a task. Here, ignition is seen the process by which individuals start and then maintain the high level of motivation necessary to pursue the deep practice process itself. Forms of ignition include, but are not limited to: primal cues, an event, interest or curiosity, and establishment of a goal. Opportunity and environment also play crucial roles in the ignition process. Coaching is a part of deep practice and it is described in *The Talent Code*.

The authors of The Talent Code found that highly experienced facilitation coaches delivered their [feedback] information to those practicing in a series of short, vivid, high-definition bursts. The directions weren't dictatorial in tone (usually) but were delivered in a way that sounded clinical and urgent, as if they were being emitted by a particularly compelling GPS unit navigating through a maze of city streets: turn left, turn right, go straight, arrival complete. Also, The Talent Code noted that excellent coaches and "teachers" were mostly older in age: all had spent decades, usually several, intensively learning how to coach a particular task (or set of tasks).

Feedback and guidance in the form of facilitative "master" coaching are useful in developing exceptional skill. Think of this as the wise, older sage who can tell the younger learner what he could discover on his own in time, but can't tell himself in the immediate. Coaching is a bit like neurofeedback: it becomes effective (or, more effective) with a faster signal response time. The development of great skill often requires the assistance of those who have the ability to facilitate skill in others.

The basic observation that the repetition of a task improves performance is not coincidence. The simple fact is that practice is a prerequisite for high-level performance of any type. This is because practice builds the neural superstructure that is the most essential part of a skill. In concern to coaching, if a strong neural superstructure is the first virtue of a great coach, then perceptiveness is the second virtue, which also takes practice to develop.

The neuro-scientific truth about skilled performance and information retention is that learners develop "mastery level" proficiency on only those activities they practice. Fundamentally, to improve ourselves and continue our growth process, knowledge must be applied and skills must be practiced.

At the level of neuroscience, excellence in thinking, problem-solving, and skills are at least partly based on the laying down of a dielectric material known as 'myelin' around the axon of a neuron. Myelin is the "white matter" in our brains, the dry mass of which is composed significantly of lipids. Myelin is the insulation that wraps around the nerve fibers in our brains and increases signal strength, speed, and accuracy. Scientists have discovered that there is a direct proportional relationship between "hours of practice" and "volume of white matter". As humans develop their skills they build thicker and thicker myelin around the nerve fibers that make up the neural pathway under use. In effect, the construction of myelin makes (or allows) the individual to perform a skill with greater accuracy and efficiency, leading to mastery. Building myelin through practice is a temporal variable (i.e., it takes time). One of the quickest and most efficient ways to build myelin is to place ourselves in a position to fail, then fix our mistakes and fail better.

When we practice anything — be it the flute, our tennis swing, or singing in the shower — we create a circuit of nerves in our brain (i.e., new neural pathways) and the more we practice, the more free-floating myelin wraps itself around that neural circuit. The more a circuit is fired, the more myelin optimizes the circuit. Heavily myelinated nerves are estimated to be 100 times faster than lightly myelinated nerves. The brain functions at a faster than average speed for highly learned tasks. And, highly practiced nerve systems are several thousand times more efficient. It is, however, also important to recognize that the opposite is also true. If we don't "exercise" a neural pathway in our brains, that pathway's signal will weaken.

The more myelin the circuit attracts, the stronger and faster its signal strength becomes. It turns out that myelin, not the nerves, is what builds the speed, precision and timing that creates super performers. The difference between a high performer, such as Tiger Woods, and most other people, is that Tiger Woods has built a "broadband" around his golf swing; and, most everyone else has chicken wire around theirs.

Fundamentally, neurons that fire together, wire together. Additionally, those behaviors and thoughts that are repeated become habit[s], they become subconscious and almost autonomic. Note here that a habit is doing something regularly with little to no conscious thought. It is different than routine, which is doing something regularly with conscious thought to the need do the routine (task).

If the ability to focus attention for enough time to complete a task is a learned skill, then it's worth considering how the constant interruptions typical in today's digital age may be fostering an inability to concentrate.

The right form of practice makes the master. Rote practice is not effective practice. Effective practice is a slow and uncomfortable interaction with something that is just out of your grasp and just beyond your capabilities, and this is what leads best to well-developed myelin. To practice deeply is to live deliberately in a space that is uncomfortable, but with interest and the sense that progress is not only possible, but absolute. Deep practice is built on a paradox: struggling in certain targeted ways – operating at the edges of your ability, where you make mistakes, which make you smarter and furthers your capacity [by restructuring your bodies systems]. Deep practice positions individuals in a place of self-leverage where they can capture failure and turn it into skill. Here, it is important to choose a goal just beyond your present abilities, to target the struggle, which may in fact lead into a state of flow. Thrashing blindly doesn't help; reaching does.

Every human movement, thought or feeling is a precisely timed electrical signal traveling through a chain of neurons. The more we develop a neural circuit, the less aware we become of using it (often associated with the sensation of flow). In other words, through repetition the process becomes "automatic" (i.e. without perceptible transition). When many of these automatic process are happening concurrently, driving awareness into the "now", then we are in the state of "flow". The best way to build a good circuit is to fire it, attend to mistakes, then fire it again, over and over – tension is a necessary biological requirement.

Optimally, individuals would only pursue deep practice in skills they truly enjoy, and certainly under an entirely voluntary and non-aggressive environment. If a person is going to invest the amount of time, passion and concentrated, difficult practice that produces high-level skill, that person will have to be deeply interested and motivated. This is quite simply, the way things factually are.

3.19 Immersive virtual technologies

Immersive and virtual technologies allow for the creation of flexible, realistic and authentic learning environments. The potential learning uses for immersion and visualization technologies are virtually endless.

The advent of immersive display and virtualization technologies means that highly-realistic and simulated creations of real-world environments are entirely possible, and have been so for several years. Of particular importance are immersive 3D stereo technologies in their ability to convey a spatial experience, a sense of distance, to a user. In virtual worlds and environments, learners personally experience the concrete realities that words and symbols describe. Through the use of intuitive, interactive virtual environments, learners practice skill-based activities for as long and as often as needed in an effort to develop mastery.

Certain applications of these technologies may not produce statistically significant differences in subject matter expertise over non-technology environments. However, due to the ability to alter environmental variables, the technological environment may be more efficient, safer, and also, more effective at capturing the interest and imagination of a learner.

Immersive displays (a.k.a., immersive environments or immersive visualization) physically surround the viewer with a panorama of imagery, typically produced by video projection. These display solutions generally allow a user to walk into the immersive environment, although there are exceptions (e.g., head-mounted displays). In an immersive environment, images are often, though not always, displayed in stereoscopic 3D. Examples of immersive displays include but are not limited to CAVEs and DOMES, head mounted displays (HMDs), panoramic projection screens and holo-immersive displays.

When presented in stereoscopic 3D mode, immersive displays are sometimes referred to as spatially immersive displays (or environments; SIDs). Stereoscopic 3D conveys spatial information to the user, and thus, the environments are known as spatially immersive. Please note that it is the stereoscopic 3D aspect of the visual display that conveys spatial information and that stereoscopic 3D presented on non-immersive displays (e.g., a desktop monitors) also conveys a degree of spatial information.

3.19.1 Interactive 3D (i3D)

Interactive three-dimensional content allows for the realistic visualization of objects, processes, and/or complex concepts within a virtualized and immersive environment. The degree of immersion depends on the type of technology used. Stereo 3D technologies are more immersive than 3D content published on a 2D surface (e.g., watching an animated film on a LCD monitor). Interactive 3D technologies are potentially one of the most effective learning and communication tools presently available because of their ability to photo-realistically replicate the physical world. Due to the immersive graphical nature of i3D technologies they have been found to support effective knowledge transfer; regardless of, to a certain extent, educational and cultural limitations that would have otherwise inhibited the effectiveness of learning. Further, because i3D replicates physical reality, it is a more natural learning medium than other more widely implemented mediums such as textbook reading, lecturing, and slide presentations.

One of the most powerful aspects of i3D is its ability to blend various media forms including audio, video, graphics, and animation into a single delivery method, which may be analyzed, evaluated, updated, reused, and shared. A second powerful aspect of i3D is its ability to be delivered in a large variety of presentation formats. Although i3D may be displayed on standard PC system with a standard flat screen monitors, it may also be displayed on mobile devices, head mounted displays, through transparent holographic displays, via stereoscopic technology, and in immersion rooms. Integrating i3D with simulation-based learning can establish learning environments which resonate with today's modern learners.

Some of the benefits of visualization include:

1. The safe simulation of real-word activities.
2. Visualize all proposed changes to existing structures in 3D prior to development. Create walk-throughs of the intended designs.
3. Demonstrate a tool's functionality, quality, effectiveness, and efficiency prior to manufacturing.
4. Model, train, and develop physical-world procedures.
5. Content may be published to a wide array of display platforms and the Internet.
6. Visualizing data and conducting research within a stereo 3D immersive (virtual reality) environment.
7. Virtualize all your design elements simultaneously to accelerate the design process.
8. Ability to augment reality.
9. Convey spatial information about objects, scenes, and other learning content.
10. Add visual depth and digital immersion to your peak state and meditative experiences.

3.19.2 Virtual reality

Virtual reality (VR; and virtual environments) refers to a three-dimensional and interactive computer-simulated environment that creates a sense of physical presence for the user. There are multiple publishing platforms for virtual reality-based solutions. VR provides a less symbolic interaction with the environment. Any description of an experience or action is usually transmitted through symbols, conventions and

formalisms, meaning that the traditional learning of a concept requires previous knowledge of symbology. VR also enables first person experiences, which are natural, unreflected and personal, generating direct, subjective and personal knowledge.

Physical and perceptual interactions in first person are possible with VR. Because VR can simulate the real world users may learn while placed in the context where they should apply that learning. This enables two types of experiences of knowledge not available in the real world, which have a high potential in education: scale and transduction. Scale is the process of distorting the relative dimensions of objects and the virtual world to give access to new perspectives. Transduction is the conversion of usually imperceptible data into information that is perceptible to human senses.

There are some valid concerns with virtual reality. Virtualization can create an environment that allows learners the opportunity to turn toward the virtual world as a means of escape. However, when individual's basic needs are met and they are driven in some way toward a purpose, they are happy in their pursuits and will be less likely to turn to VR as a means of escape; for they have nothing to escape from and only a path of growth to move down.

New technologies can lead to a disturbance in an individual's learning process. VR can turn the interests of the learner toward the medium itself (i.e., the VR technology), and away from the content to be learned. While this is true in particular cases, it may be more true that users of new virtual reality systems experience a bit of a "wow effect" and get caught up in the environment, no longer maintaining an awareness of what they had intended to learn. However, this peak interest and fascination in the technology fades after continued use of it, leading to the experience eventually becoming the tool it was intended to be for the user.

Also, learners acting in a self-directed environment are more likely to maintain interest in the content, regardless of a peaking interest in the technology.

Technology can lead to physiological complications when not designed ergonomically or in bio-physiological alignment of its user. Every technology in our community exists in a continuous evaluation cycle for its short and long-term effects on users and the community.

3.19.3 Augmented reality

Augmented reality (AR) is any environment that combines both virtual reality and real-world elements. More precisely, it is a type of virtual reality that augments a direct or indirect view of the physical real-world environment with an overlay of virtual, computer-generated input, such as sound, graphics, or text. Augmented reality differs from pure virtual reality in that while virtual reality often aims to replace a person's perception of the world with an artificial 3D world, augmented reality enhances a person's perception of his or her physical surroundings. AR technology can even be used to annotate physical reality. Augmented reality can be implemented over tablets, smart phones, HMDs, and even pcs with a camera attachment.

Augmented reality head-mounted display (AR HMD) devices present an alternative to CAVEs. Whereas a CAVE can only have one individual using it at any one time, AR HMD allows for multiple people to see 3D objects in midspace at the same time.

AR requires the use of physical markers or real-world shapes that allow the correct positioning of objects and text in 3D space. There are degrees of interactivity built into AR systems. Some AR marker systems allow a user "touch areas" on the marker, thus causing the AR 3D model to animate in some pre-defined manner. Some AR marker systems allow markers to "interact" with one another to change or animate the 3D model. AR systems may also be combined with voice recognition software. For example, a marker may be displaying a 3D model of a wind farm. When the user blows into a microphone the voice recognition software detects the noise and in return animates the movement of the blades on the wind turbine and makes a whirling noise. It is also important to point out that augmented reality is moving toward markerless AR using real-word shapes.

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