

# [The like a linear system, learning numerous](https://assignbuster.com/the-like-a-linear-system-learning-numerous/)

The Myth of ProgressMariaCostello (a)The book I have chosen to do my review on is Tom Wessel’s “ TheMyth of Progress.” I chose this book as the caption intrigued me.

Progress isconsidered a positive thing, so I was sceptical as to why it was being labelledas a “ myth” here. Throughout the book, Wessel’s challenges major societal normsand questions our whole understanding of growth and progression. Through exquisiteanalogies and wonderful wildlife references, he explains how our currenteconomic system is unsustainable and causing detrimental effects to not onlythe environment, but to us as a society. Chapter one of this book “ The Myth of Control” deals withthe concept of control. Our world is a complex system, full of unpredictability. We, however, treat it like a linear system, in which everything can bepredicted and controlled. Wessel’s likens this approach we have to our worldlike the one we have to education. We treat education like a linear system, learning numerous facts without actually understanding or being able to applythis information.

Similarly, instead of attempting to prevent diseases, wefocus on curing them. Just as Edward Lorenzo observed when predicting weather, it is impossible to control a complex system. It is evident our approach to thecurrent climatic problems is wrong. Just because we can’t see majorenvironmental changes right away, does not mean they aren’t happening. Largechanges happen gradually, so we need to act now before something severe happens. Humans think by advancing technology we can fix all our problems, when in factthis is not the case.

“ Control is areality in a linear system, but in a complex one it’s simply a myth.” 1 Wessel discusses the myth of growth in chapter two. Economistsbelieve that constant growth is both possible and necessary for us to succeed. They believe that if one natural resource diminishes, we can replace it usingadvanced technology. We are under the impression that our natural resources areinfinite and waste does not exist. “ Once a population of organisms overshootsits carrying capacity, the ecosystem that supports the population becomesimpaired, which in turn has negative consequences for the population that hasgrown too large.” 2 This belief that nothing will run out isdangerous and unsustainable, as is evident with our dwindling fossil fuelreserves.

In order for our ecosystem to strive we need limits to growth. Wessel’sconveys this through the example of the reindeer at St Matthew. Initially, there were 29 reindeers on the island. Twelve years later, the population haddramatically increased to 1350 due to lack of predators and an abundant foodsupply. On the next visit to the island, the heard had decreased to 6000, andeventually became extinct.

The reindeer at some point had exceeded their carryingcapacity. At present, just like the reindeer, the human population isdramatically increasing. This increase is unsustainable. Our natural resources willtoo run out. We, at some point, will also reach our carrying capacity. Chapter three of the book deals with the Second Law ofThermodynamics and entropy. Entropy is the idea that everything moves fromorder to disorder.  Wessel’s tells us howevery environmental problem, such as depletion of fisheries, deforestation and eutrophicationof aquatic environments, are all a direct result of an increase in entropy.

Weare using more energy than the ecosystem is able to replace by photosynthesis. An increase in population due to better health care and industrialisation hascaused an unsustainable increase in entropy which is pushing our biosphere outof equilibrium. This is evident in global climate change. Although climate maynot necessarily be increasing, there will just be more erratic weatherconditions, like storms and hurricanes.

The thinning of the Arctic Ocean is avery serious issue. As ice melts, the water surface area increases, meaningmore light is deflected back towards space. This is result in a decrease intemperature and therefore a decline in food production.

In order to stop thisoccurring, a change must start from the bottom, with us. If we revert to buyinglocal produce, or growing our own food instead of purchasing from hugemultinational corporations, our overall entropy would be reduced. Buying fromhuge corporations produces more entropy as their products contain lots ofpackaging and has been produced across the world.  In chapter four, Wessel discusses the loss of speciesrichness in the ecosystem. Systems with greater diversity have betterresistance to disruptions. If an ecosystem has great diversity, the loss of onespecies in the system will not greatly affect the overall system.

If theecosystem is lacking diversity however, a disruption to one species will have anegative reaction on the whole system. Wessel’s relates this lack of diversityto economics. When Storm Katrina hit the USA oil prices rose by 40%.

This is aclear indication of our over reliance on few resources. Today, we wrongly viewprogress as the rise of huge multinational corporations. Huge farms andcompanies are taking over smaller ones. These companies are able to outsourceto China and sell products at a reduced price. However we know from the secondlaw of thermodynamics that you can’t get anything for nothing.

These low pricescome at a cost. Job security, wages, and of course, environmental protectionall pay the price. These huge corporations have the power to control thegovernment and laws.

We are under the illusion we are in free world, when we infact we are being controlled by the hands of a few.  The final chapter of the book focuses on the myth ofprogress. Wessel tells us we are much too focused on materialistic possessions. We associate objects with wealth and happiness, however the reality is peopleare happier when they have less. Life expectancy, transportation andagriculture have all greatly improved, however because of this we have becomedistant from the earth and from each other. We are living longer but notbetter. Wessel compares this to the ancient hunter gatherers.

“ As huntergatherers they saw themselves as a part of the land, not apart from it, sharingit with all the other plants and creatures on whom they depended for survival.” 3Today, there is a direct correlation between affluence and depression. Peoplework longer hours, are obsessed with consumerism and have become engrossed witha virtual reality. Wessel concludes that if we move away from thismaterialistic society we live in, we can undoubtedly reduce the detrimentalglobal environmental impact we are having on the world.  (b) Economics and multinational corporations are topics Wesselcontinuously challenges throughout the book. He says that economic theories arebased on the idea of never ending growth, which totally disregards the secondlaw of thermodynamics. Before reading this book, I was aware of issues in ourcurrent economic system. The recession and housing crisis were direct problemscaused by unsustainable economic growth.

However, I always assumed GrossDomestic Product (GDP) was an indication of a striving economy. I was under theimpression that the more money that circulated the better the economy, andtherefore a better standard of living for us. I was surprised to learn howeverthat transactions that do not involve the exchange of money, although may notbe economically beneficial, are socially and environmentally better. Wesselseems to think if we can alter our current economic system, this would be amajor advantage to our environment. In theory, this sounds manageable, but wewould need to change the way we live our lives and how we think. The idea thatmore is better has been around for a long time and not one that will change overnight.” We measure happiness in quantity over quality.” 4 Technology is another reoccurring topic in the book.

To me, technology was nothing but positive, improving our lives in many ways. Improvedhealthcare, greater food production and better communication were all directbenefits of our advanced technology. Wessel interestingly points out howtechnology has actually had many negative environmental effects though, something I was never aware of, or had ever even considered. Fertilisers, synthetic detergents and CFC’s are all examples.

It seems like we have beenusing technology to solve our problems when in fact we have only been adding tothem. We have become so advanced as a society that the idea of going backwardstechnology wise seems unimaginable to me. Similar to the economic problem, itwill take gradual change over a long period of time.

In theory after readingthis book I would like to say I will walk everywhere, totally refrain fromusing plastic and keep my energy usage at home to a minimal, but realisticallyin the society we live in that would be extremely difficult. I remember when Iwas younger I didn’t think twice if someone threw rubbish on the round. Nowthankfully that has become socially unacceptable. There needs to be a wholesocietal change towards environmentally unfriendly actions. I found the concept of entropy discussed in the bookextremely interesting. Having studied it in second year, I was obviously familiarwith it, but never related it to the environment.

Entropy is the movement fromorder to disorder. It represents waste in our environment. An increasingpopulation due to advanced technology and better healthcare and agriculture hasresulted in an overall increase in entropy in the world. This has caused ourbiosphere to shift out of dynamic equilibrium. This shift out of equilibrium isone nature cannot balance with photosynthesis. This seems to be the underlyingissue to most of our environmental problems.

Nearly all of our problems can directlybe related back to an increase in entropy. It cannot be argued that our energyconsumption has greatly increased, especially in the developed world. Countriessuch as America and China have vastly greater energy usage than third worldcountries. Perhaps a system should be put in place to reduce this consumptionand balance out usage worldwide. This concept of entropy resonated with me as Ihad previous knowledge of it from thermodynamics. I had always wondered why weneeded to reduce our energy consumption, such as switching to energy savinglightbulbs. I had always only associated environmental problems with airpollution for example or littering.

Wessel criticises major industries in the book, such as theagricultural industry, and more notably, the pharmaceutical industry. StudyingChemical Engineering, this caught my interest. The pharmaceutical industry is ahigh grossing one whose main objective is to make money. If implementing asustainable system is not financially rewarding, unfortunately it is not intheir interest to comply. Incentives need to be put in place to encourage theindustry to go greener. Wessel also points out how the whole pharmaceuticalindustry is based around the idea of cure rather than prevention because thisgenerates more money for the companies, but in fact this is adding entropy intoour biosphere. Naturally as a chemical engineer I could be involved in the oiland gas industry, as well as producing plastics.

Oil is said to run out in thenext fifty years and admittedly this never bothered me until I read this bookand realised how devastating that is. Our enormous plastic production is alsokilling many wildlife as plastic is non-biodegradable and builds up in the sea. Wessel’s ideas on these industries, although admirable, are somewhatunrealistic. The pharmaceutical industry is a business like any other and willnot willing direct their research towards prevention rather than cure as thiswould result in a drastic profit loss. Similar to companies such as Walmart, the power of the industry is in the hands of a few.

Big pharmaceutical companieswield power over governments. Recently however, there has been a shift awayfrom Big Pharma, which environmentally is a positive thing.  Technology, pharmaceuticals and oil and gas are all engineering industries and so as awhole, do need to be responsible when it comes to sustainability as they aremajor contributors to our current problems. I do appreciate Wessel’s argumentson these topics but am somewhat torn between the two as working in one of theseindustries is going to be my job someday and so these changes would undoubtedlyresult in job implications to these sectors. Companies could make smallerchanges though, such as switching to renewable energy and limiting waste byrecycling in processes where possible. This will not only reduce their carbonfootprint, but save on costs too. (c) Before reading this book, I naively had a pre conceived ideait was going to be written by another radical environmentalist looking to “ changethe world”.

I always had considered myself reasonably aware of the currentenvironmental difficulties we are facing. I was conscious of the recentpopularity of veganism to reduce the effect of animal agriculture, the changingunpredictability of weather conditions and the threatening increase of plasticin our oceans. Admittedly though, I considered these problems for futuregenerations to deal with, and not ones that are in fact currently affecting us. Perhaps this arrogant idea that the world is merely ours to do what we wish withuntil we pass on is one globally thought and one we undoubtedly need to change.

The book undeniably changed my outlook on my carbonfootprint. I never gave it much thought before, and honestly never reallycared. I admittedly thought the book was going to bore me, and be the sameramblings about taking showers instead of baths, or walking to work instead ofdriving, when in fact it honestly changed my view about the world we live inand how we interact with it. I had previously greatly underestimated the futurecost of my current actions. I was always under the impression I was only beingenvironmentally unfriendly when I got in my car, or if I littered the streets. The whole idea of entropy and the second law of thermodynamics baffled me.

People think they are reducing their carbon footprint by choosing to cut outmeat consumption for example, when in fact they are buying vegetables whichhave been shipped from the other side of the world, sprayed with pesticides andcovered in plastic wrapping. Wessel’s makes the point that it may beoverwhelming knowing what the right thing to do environmentally is, but if wejust think of what produces the least amount of entropy then that will be theright choice. It is evident massive changes need to be implemented in orderto save our planet, but these changes are realistically only possible by takingsmall steps at a time. Is this enough though? From reading the book, I feeldrastic changes are needed immediate and honestly, I’m not hopeful about thesechanges being implemented in time. I am sceptical about the planets future. The book “ Limits toGrowth” was written in the 70’s where all the current issues we are facing arehighlighted, yet our environmental issues have only gotten worse. We have beenin this crisis for a long time, so when are we going to act? In theory it iseasy to say we will change, but we need to alter our whole unsustainableeconomic growth system and materialistic lifestyle in order to make worthwhilechange. “ Our leaders think we can control terrorism by simply taking out theterrorists.

If we hope to win this war we need to remove the positive feedbackthat breeds terrorism.” 5To conclude, this book really opened my eyes to the currentenvironmental catastrophe we are about to face unless radical change isimplemented. I will definitely try make changes to my personal life afterreading this book. I have already noticed myself checking food in the shop tosee are they produced locally and recently I bought a reusable cup for waterand coffee. I have stopped driving small distances and leaving the lights onwhen I’m not at home. Hopefully these subtle changes will make a big impact ineradicating our sustainability issues. References1: Wessels, Tom, 2006.

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