The Great Simplification

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[00:00:00] Fritjof Capra: The major problems are systemic problems, they're all interconnected and interdependent. And underlying most, if not all of these problems, is our obsession with economic growth. Our politicians and economists believe in this absurd illusion that continual, perpetual growth on a finite planet is possible.

[00:00:24] That needs to be changed.

[00:00:29] Nate Hagens: Today's guest is Fritjof Capra, who is a theoretical physicist and foundational academic in the field of systems dynamics and interdisciplinary applications. Professor Capra is also the founding director of the Berkeley Center for Ecoliteracy in California. He is the author of many books, including the Tao of Physics.

[00:00:53] which he wrote over 50 years ago, The Web of Life, as well as the textbook, The Systems View of Life, which he bases his Capra course for those inspired by the systems view of life worldview. Fritjof and I talked about the inner relationship of everything. How consciousness affects how we consider our role in the world, how important system synthesis is to understanding the metacrisis.

[00:01:19] And he also offers some advice on ways forward for young people and all of us in our current global human predicament. I would like to also remind viewers that We are not a monetized podcast. One of the biggest ways you can support us is by following and subscribing on your favorite platform.

[00:01:40] Additionally, if you'd like to donate to our organization, please use the link in the description. All donations are tax deductible and go directly to our operating costs. We appreciate your continued listenership. With that, please welcome Professor Fritjof Capra. Fritjof Capra, welcome to The Great Simplification.

[00:02:01] Fritjof Capra: Pleasure to be here.

[00:02:03] Nate Hagens: I'm glad we could get this scheduled. I've been trying to get you on the show for a long time, and I finally met someone who knew you, so happy that you're here. All right. So you have had a rich career with a foundation in physics and especially in systems thinking. perhaps we can start by you giving us a background of your journey up until your current state of thinking and perspective on the world today.

[00:02:29] Fritjof Capra: Well, we have to see to limit this because this is a long story, could take up the whole hour. So, so let me try and summarize it. I think my career began in my student days in Vienna. When I read a book by Werner Heisenberg, one of the founders of quantum theory, of quantum physics, and the book is called Physics and Philosophy, and in this book Heisenberg describes very vividly how this handful of physicists in the 1920s saw themselves confronted with a totally new type of reality, the reality of subatomic, atomic, and subatomic phenomena, and their language, their way of thinking, their basic concepts were totally inadequate to describe this language.

[00:03:27] And it was a struggle of ten years which led then eventually to quantum theory. And I read this as an undergraduate student in Vienna, understood only about half of it, but it fascinated me. And it stayed with me ever since. my whole life. I read it again and again, and actually I still have the original German paperback in my library.

[00:03:52] So what, what Heisenberg basically conveyed to me was that the subatomic world cannot be, in terms of isolated objects, but is an interconnected web of relationships, of inseparable relationships. So that was a huge, had a huge impact on my thinking. So then I had to do my thesis, I had to do my exams, I had to graduate and all of that.

[00:04:26] And between my student years and the writing of my first book, the Dao Physics lies the decade of the 1960s and the whole, counterculture, the, cultural movements of the 1960s, which for me were the strongest and most. radical personal transformation that I went through. So I was in my early and mid twenties and these were my formative years and my values and my whole thinking about society, about politics about human relationships was formed during the 1960s.

[00:05:10] In the 1960s, I began to study Eastern philosophy, and you will remember this was the time when you know, yoga and meditation and Eastern mysticism were very popular in the West. This is when the Beatles went to study with Maharishi Yogi and George Harrison. began to play, to have sitar lessons with Ravi Shankar.

[00:05:37] So that, and I'm, giving these examples because the arts played an important role. It was not only conceptual and philosophical, but also was an artistic revolution. So in the 1960s, I studied Eastern philosophy, I practiced meditation, And I experienced, I experimented with psychedelics and those three experiences combined to form to trigger an expansion of consciousness in two directions.

[00:06:11] And this is true for all of the 60s, not just for my personal experience. So, the first direction is toward meditation, toward spiritual traditions, toward states of consciousness that psychologists began to call transpersonal. And the second one is the expansion of social consciousness in the questioning of authority, and there we have the free speech movement, we have the civil rights movement, we have the, Prague Spring, and various political movements and, and all those combined aren't.

[00:06:52] to transform me very strongly, and within this transformation, I suddenly realized that the worldview expressed in the Eastern mystical traditions, Hinduism, Buddhism, Taoism, was strangely similar to the worldview that Heisenberg described in his book about quantum physics. And so in the 1970s, in the early 1970s, I put the two together and explored these parallels between the concepts of modern physics and the basic ideas in eastern spiritual traditions.

[00:07:35] And this led to my first book that Dao Physics, which is now 50 years ago. Next year will be the 50 year anniversary was published in 1975. So that's, the first part of my story.

[00:07:49] Nate Hagens: What happened in the seventies? It was almost like we were close to this cultural awareness of things being related to each other and kind of feeling a little bit of the Eastern religion impact, and then we went the, you North American culture went to a totally different direction.

[00:08:12] Fritjof Capra: Yeah, and, this was very surprising. I would say in, in the 1980s, there was another input which was political, and that was green politics, the green political movement, which, was the political manifestation of the values of the 1960s. So, the 60s led into the 70s with the New Age movement, holistic health movement, and all these movements, and then in the 80s you had green politics, and you know, In the meantime, I wrote my second book, The Turning Point, which was published in 1982, uh, around the end of the 80s, many of us felt that we were really close to achieving these values, as you mentioned, The awareness of fundamental interconnectedness the values of nonviolence and peace, and what happened then in the 90s was something that surprised everybody, and that was became known under the heading of globalization and was connected with the information technology revolution.

[00:09:28] Suddenly you had a new world, you had this digital world, and you had the internet, you had emails, you had the digital interconnectedness that we now are taking for granted that you and I are using right now to talk to each other without, blinking an eye. We're so used to it, but that was a revolutionary development.

[00:09:54] And that introduced a new kind of materialism, because it was used by economists and politicians and corporations to create a new type of economy, the global economy, which is essentially a corporate economy geared toward maximization of corporate profits, and not to human well being. Human well being is what we had in mind in the 60s and 70s, and it took us a whole decade to overcome this.

[00:10:27] And it was only at the end of the 1990s that a, a response was formulated in terms of what is now often called the global civil society, a global coalition of NGOs opposing the corporate economics and, and advocating different values and different social systems.

[00:10:51] Nate Hagens: Well I don't know how much you know about my work, but I describe the interconnections as a economic superorganism and the economic superorganism kind of took over in the 80s, 90s, up until now so keep going and bring us up to the, present moment on your thinking and the importance of relatedness.

[00:11:16] Fritjof Capra: My, my next step was actually formulated, I formulated it already in the Tao of Physics in 1975. At the very end of the book, in the epilogue, on the very last page of the book, I made a statement which I'd like to read to you. Uh, I wrote In 1975, the worldview implied by modern physics is inconsistent with our present society, which does not reflect the harmonious interrelatedness we observe in nature.

[00:11:52] To achieve such a state of dynamic balance, a radically different social and economic structure will be needed, a cultural revolution in the true sense of the word. The survival of our whole civilization may depend on whether we can bring about such a change. So that, to me, you know, looking back 50 years, looks like, sounds like a manifesto, you know, that I wrote in 1975.

[00:12:20] Nate Hagens: It gives me both hope and despair. It gives me hope that a member of my species was writing that 50 years ago when I was watching cartoons. But it gives me despair, the trajectory that our global culture has taken since you wrote that.

[00:12:35] Fritjof Capra: Yeah, well, I, I think we have to realize, and I, came to realize this much later in, you know, in, in the last 20 years that this transformation, this paradigm shift from a mechanistic view to a holistic and ecological view is not a smooth transition.

[00:12:56] I have seen in those five decades, I have seen scientific revolutions, cultural revolutions. but also backlashes, counter movements, and it has been like the swing of a crazy pendulum, a chaotic pendulum, you know, going back and forth. So, if you look back these 50 years, I would say that The values that the counterculture was fighting for in the 1960s have largely been accepted now.

[00:13:36] if you, tell somebody today, I can't come to our meeting because I have a Qigong group or I have a yoga group, Nobody will blink an eye, you know, it's socially accepted, you know, in 50 years ago, you would have been ridiculed to say that by most people, you know, by the mainstream. So, we have achieved a lot the same for you know, the feminist movement known at the time as Women's Liberation, and of course now, Most recently, gender politics, you know, is a very strong movement.

[00:14:12] The LGBTQ movement is very strong. So, we have achieved a lot, but there has also been the counter movement, and especially in the last few years. If you want to be depressed, then think of the last two or three years with the New emergence of violence and war. I mean, it's unbelievable to me that the thinking I grew up with as a child in the 1940s was during the Cold War, where we had the Iron Curtain.

[00:14:45] I actually grew up about 20 30 miles from the Iron Curtain in the south of Austria. And we had the Eastern Bloc and the Western Bloc and the zones of influence and the struggle for power. and now we get the same type of thinking again, know? And, and where, where are the Martin Luther Kings and the Mahatma Gandhis today?

[00:15:11] Nate Hagens: It's a good question. So, so bring us up your more recent book is a systems view of life. when did that come out and, what is your current thinking?

[00:15:22] Fritjof Capra: In the 19, in the late 1970s, I began to act on this manifesto that I wrote in the Dial of Physics and got interested in social issues, in, in economics, in management, in education, and I realized at a certain point that all these issues had to do with life, either with individual, human beings, with social systems, with ecosystems.

[00:15:56] I got very much into ecology and so I realized that physics had nothing to say about life. In the beginning, I thought the new physics would be a model for a new medicine, for a new economics, for a new management. But I realized physics has nothing to say about life. And so I moved in the mid 80s from physics to the life sciences.

[00:16:21] And I began to put together a synthesis of a new conception of life that emerged. during the last four decades, and this is what I call the systems view of life. I published several books about this synthesis as my ideas evolved, and the, final version is in this textbook, The Systems View of Life, which I wrote with my colleague Pierluigi Luisi, and I call it the systems view because It is an understanding of life in terms of relationships, in terms of patterns, in terms of context, and that's what systems thinking is about.

[00:17:01] Nate Hagens: So, this is a systems synthesis podcast. the guests we have cover the gamut of ecology, energy, anthropology, neuroscience, climate, biodiversity, economics, etc. Great. Wonderful. Can you clarify to our listeners and viewers, in your own words, why you think systems thinking is so critical for addressing our current global ecological and social crises and policies?

[00:17:31] Fritjof Capra: You, almost gave the answer in your question when you said the ecological and social global crisis because the crisis we have is sometimes called a poly crisis these days, that's a new term, and it's a multifaceted crisis and The problems, the major problems we have economic, social and all kinds of financial, energy, health these problems are all interconnected and interrelated.

[00:18:06] They are systemic problems. None of them can be solved in isolation. So, you cannot solve problems Improve the state of an economy by doing economics. You cannot improve the state of health of a person or a community by doing medicine. I mean, you have to practice medicine, but it's not enough.

[00:18:30] Because social issues uh, play a role, you know access to, to nutritious food and so on, which relates to, you know, poverty, which relates to economic inequality, which relates to corporate expansion and so on. So it's all interconnected. And This is why systemic thinking or systems thinking is critical to solve these problems.

[00:18:57] And in this book that I wrote with Pierluigi Luisi, we, give the theory of the systems view of life, and then we talk about applications, and we highlight dozens of solutions to our major problems, which are systemic solutions corresponding to the systemic problems.

[00:19:21] Nate Hagens: When you were studying physics back in the day and even during your career, would there be meetings with physicists and ecologists and, other scientists, or was it pretty siloed back then and now?

[00:19:39] Fritjof Capra: it was pretty siloed, but I broke out of it. And, and so I let's see, I, graduated in uh, 1966. I had several postdocs, one in Paris, one in London, one in, in, here in California, in Santa Cruz. And after writing the Tao of Physics, when I branched out to study other areas, I continued to do physics only half time or part time, and part, the other part time was, writing.

[00:20:19] And I soon realized that in order to address these systemic problems, I couldn't do it alone, because I was trained as a physicist, I knew nothing about economics, and so I developed a technique of dialogue. Seeking out people who shared my values and who were experts in their fields and I engaged them in dialogue and, co wrote papers with them and, arranged meetings.

[00:20:50] So, so these, were people like you know, Gregory Bateson and Lynn Margulis and Hazel Henderson, really the heavy hitters, you know, in the systems world. And I. I organized symposia and dialogues, and this is how I work.

[00:21:12] Nate Hagens: So, is there hope that the universities around the world could adopt a system science framework, at least more than they have now?

[00:21:22] Or is it so much research money and hierarchy and power that doesn't fit our current system? What are your thoughts on that?

[00:21:31] Fritjof Capra: It's, a struggle, but I think there is hope, and there is hope maybe for two reasons. One is that when you tell people today that networks are important, and when you tell them that we live in a complex world, you don't have to convince them.

[00:21:56] That's commonly accepted, that's the common perception and it is correct. And in order to deal with networks, which are patterns of relationships, you have to think in terms of patterns of relationships, and that's what systems thinking is all about. So that's, one hope. The other hope is in our youth people like my daughter, who is now in her late thirties, have grown up in networks, in social networks, you know, with their phones and their social media and, so on.

[00:22:33] And anybody between 20 and 40 today has lived in social networks and thinking in terms of networks is natural to them. And I think these two facts, that networks are generally recognized as an important social phenomenon or maybe as the dominant social phenomenon and that our youth is totally used to social networks, that gives me hope for the future.

[00:23:05] And I can observe that in universities it's true that the establishment has heavily invested in the status quo, in the mechanistic worldview, in fragmentation, in reductionism. But there are small colleges and universities where the new

thinking is practiced and developed. And there is this global civil society, which has its colleges and research institutes and publications where the new thinking is developed.

[00:23:37] Nate Hagens: So, when did you realize, when you were studying subatomic physics, that everything couldn't be described mechanistically and that there were relationships that applied at a macro scale between humans and our environment and animals and trees and everything is interconnected. Was that an instant realization or did that take a long time?

[00:24:01] Fritjof Capra: This came via Eastern mysticism, you see, and when I realized that the Eastern philosophies and quantum physics had very similar worldview, I had this realization, and the difference is this. was that in physics, I got this from reading Heisenberg. And in the Eastern philosophy, I also got it from reading the Bhagavad Gita and books by Alan Watts and D.

[00:24:32] D. Suzuki and so on. But I also got it from experience, both meditative and psychedelic. And so that, that really hit me very strongly. And I can really pinpoint the year as, 1969, where I had this really profound experience.

[00:24:51] Nate Hagens: So in your writing and speaking, you've drawn many links between science and mysticism in, in your work.

[00:25:00] can you unpack where you see these links and why they're important? Well,

[00:25:05] Fritjof Capra: the bauh, realization in both areas is that the world is fundamentally interconnected. That, that we are dealing with networks of relationships in which the properties of individual. Objects or people depend on their relationships to the rest, to, to other people, to the environment, to history, and also, of course, genetic relationships, to ancestry, so what, you call the identity of either an atom, hm?

[00:25:55] Or, you know, an animal, or human, or plant, a living organism, the identity derives from its relationships to other things. And let me just give you an example, you know, if you ask me to introduce myself, and you ask me, well, Fritjof, who, who are you really, you know? I, could say I'm a scientist and that's what we're

doing here, and I'm, I was a physicist, now I'm a systems theorist, I'm a best selling author, and so on and so forth.

[00:26:32] But I could also say, you know, I'm a skier and a tennis player, and I'm a jazz fan, and I, used to, go to experimental theater and, stuff like that. So it's all about relationships. Relationships to cultures, to people, to history. I also speak several languages, so that's another type of relationships.

[00:26:59] Linguistic relationships. So identity is all about relationships.

[00:27:04] Nate Hagens: So, how does that jive with Darwinian selection in biology or multilevel selection? I totally understand, and this is a new realization for me that we're connected to everything. you know, I've had ecologists on the show that's say, where does the, tree that gives an apple.

[00:27:27] Where does the apple start to become me and the soil and the bird and the tree. But, does this, is this conflicting with Darwinian theories? No, it's not. it's not conflicting with Darwin. It's conflicting, which is sometimes, with what is sometimes called neo Darwinism. So Darwin, had a vision that was totally holistic and systemic.

[00:27:56] Fritjof Capra: And the vision was of a vast planetary network of living beings interconnected in space and in time. And that is totally valid, and that is, has been confirmed by sub, subsequent research. What, what Darwin did not complete was the idea of evolution, evolutionary change and of the creation of new species.

[00:28:29] and, he, he spoke about What, what's the term he used? he didn't speak about mutations, but he spoke about transformations, but he used a different term, which I forgot at the moment. Anyway, he didn't understand the details of genetic change, and after Darwin, with Mendel and genetics people said, All change comes through through mutations, random mutations, followed by natural selections.

[00:29:10] And that framework was too narrow. And with the systems view, And this was mainly the work of Lynn Margulis. with the systems view, other avenues of genetic change were discovered. And there are basically two other avenues. One is,

and both have to do with bacteria, and Lynn Margulis was a microbiologist, so she knew that world of bacteria inside out.

[00:29:42] So one avenue of genetic change is gene transfer. Bacteria routinely exchange genes. in their day to day lives. And that's a very powerful avenue of change. And the second one is genetic acquisition, where a larger organism swallows up a smaller one and use and incorporates the genome of the smaller one into its genome.

[00:30:14] Much like a corporation would buy a smaller corporation because they want that telecommunication system, or something like that. And so this genetic change, which is really the theory elaborated by Lynn Margulis, and which is known as symbio symbiogenesis creation of species by symbiosis, that is another avenue of, of change.

[00:30:44] So You have these three avenues of evolution genetic mutation, gene transfer, gene exchange, and symbiotic creation, creation of new species through symbiosis. Now, when this happens, you have a new genome. And the new genome, whichever way it was arrived at, needs to be integrated into its environment.

[00:31:18] Fritjof Capra: And this is not a random process, this is a highly coordinated process, which leaves only a few possibilities. And so we see that evolution has random elements. But most of it is highly complex and coordinated.

[00:31:36] Nate Hagens: I agree with that. I'm, wondering what you think the implications of everything you just said and the three different uh, ways of evolution, the way that Lynn talked about it.

[00:31:46] Why, is that relevant to the human polycrisis and what we face?

[00:31:51] Fritjof Capra: Well, I think it is relevant to the way in which we deal with the natural environment. And, let me phrase this in terms of a formulation which I arrived at in the last few years and which I haven't published yet.

[00:32:11] Although I have spoken to my students and many other people about it for several years. two or three years. And that is a formulation of the systems view of life in terms of four principles of life, which are systemic principles that apply to

all living beings. So the first is, not surprisingly, life organizes itself in networks, that we have talked about already.

[00:32:44] Now, it's important to realize that these living networks are not networks of structures, but networks of processes. And the processes, and that's the second principle, are processes of regeneration. Life is inherently regenerative. And the other Two principles are that life is also inherently creative and inherently intelligent.

[00:33:14] So now when you deal with a natural environment that is a living network or networks within networks that are inherently regenerative, continual regeneration, creative and intelligent, the way of Interacting with this environment would not be to try to dominate it and exploit it, but would be to engage with it in dialogue, in cooperation, in mutual respect.

[00:33:47] So it's a total, change of attitude. That's why it's so important.

[00:33:52] Nate Hagens: So is it. Possible that we could have culture wide or even in pockets such a radical shift in perception as you describe in the system's view of life. So, so that we have a new narrative about our time on the planet and the choices ahead and a foundation for solving or, at least mitigating some of our more pressing problems.

[00:34:16] Yeah,

[00:34:17] Fritjof Capra: certainly it's possible. And, first, let me say that. This is also the world view of many indigenous traditions and when Native Americans, for example, say, speak about nature and talk about living beings in nature as all my relations. You know, they're literally correct. Going back to Darwin now, you know, this network of beings, they're literally correct.

[00:34:48] I mean, the redwood tree in my garden is a relation, genetically is related to me. And, so this, kind of attitude to what nature exists in indigenous traditions, and has been taken up by many people, for instance, who live in eco villages, or in, these kinds of alternative communities, and, I think this is how it will spread.

[00:35:21] Nate Hagens: So you are a scientist I know you care about spirituality as well. So what does spirit spirituality mean to you? And how has it guided your work as a scientist, as a, human, as a teacher over the years?

[00:35:40] Fritjof Capra: I think what it means to me is I can best tell you by, Going back to the original meaning of spirit.

[00:35:51] Spirit, the word comes from the Latin spiritus, which means breath. And this is a very interesting discovery which which I owe to a friend of mine, a Benedictine monk, Brother David Steindl Rust, who has been sort of my spiritual mentor over the years. And he pointed out to me that And this spirit meaning breath refers to the breath of life.

[00:36:21] And he also pointed out to me that the same meaning is the root meaning of the Latin anima, which means soul, but also the root is breath. And the Greek psyche, they all mean the breath of life. And so brother David says. That in you, your spiritual moments are the moments when you feel most alive.

[00:36:48] And, I have felt these moments in meditation, but also in uh, experiencing art during a piece of music. I, I would Specifically mentioned John Coltrane, or also Indian music, Aliaq Bakan, Ravi Shankar led me to deep experiences. Also in sports, you know, I grew up in Austria and, I'm a very good skier.

[00:37:18] I used to be a ski instructor in my student days. So I remember ski runs, which were a spiritual experience, and what is, let me just add one thing, what is characteristic of this total aliveness is the melting away of distinctions. So when you ski, there's no longer the slope and the skis and your body and your head.

[00:37:44] And your gloves, that all disappears and it, melts away into the rhythm of skiing, the movement, the experience of the rhythm.

[00:37:54] Nate Hagens: So some people might refer to that as a flow state. So when you apply it to spirituality and anima, it might be a flow state. in natuh, or something like that. I

[00:38:07] Fritjof Capra: could be, you know, I'm, a big tennis fan and I also play tennis myself, although not as well as I ski.

[00:38:15] But in tennis they call it being in the zone, you know, where every, stroke is perfect. You see the ball like a basketball. They sometimes say, And, and, and tennis players can be in the zone for a few minutes, not longer, maybe 15 minutes maximum.

[00:38:36] Nate Hagens: So this was adaptive, somehow, over the eons.

[00:38:41] Fritjof Capra: That's a really interesting question. Before I said that life is inherently intelligent, so living systems are cognitive systems, and what this means is that they interact with their environment with sensory organs, and as they interact, the organisms become more complex, so do the sensory organs, and so do the cognitive processes, and eventually you have the emergence of consciousness in terms of self awareness, conceptual thinking, projections, and so on.

[00:39:21] And at that point, which happens with the great apes, but comes to full flourishing in humans, at that point, we have the ability to abstract, to think conceptually, and to act against our own nature. Right? We have a biological nature, but we have a mind, we have a consciousness that allows us, makes it possible to act against our own nature.

[00:39:54] And, You know, animals and plants don't do that. They act always within their own nature. So, if you wish, if you want to be fanciful, you could say they're always in a meditative state. But our states of meditation counteract this abstraction where we abstract ourselves out of, nature and re link us to nature.

[00:40:20] Nate Hagens: So Consciousness, and more specifically, an expanded variety of consciousness allows us to have awareness of our situation and suppress or bend or do behaviors counter to what we might call the agenda of the gene, our default natures. So consciousness in the way that you're describing it is one of the antidotes to the polycrisis.

[00:40:49] Consciousness.

[00:40:50] Fritjof Capra: Yes, absolutely. Yeah. And, and evolution in, in recent centuries human evolution has not been biological evolution. We haven't changed much biologically, but we have changed a lot socially and culturally. So it's social evolution, cultural evolution, and that's the evolution of consciousness.

[00:41:14] And that's also our hope for the future.

[00:41:16] Nate Hagens: So you are in your mid 80s and you look happy, healthy, peaceful do you have a practice? Do you meditate work out? Like, what is your routine, if I might ask?

[00:41:30] Fritjof Capra: Yeah, I, practice Tai Chi. I've practiced Tai Chi as a form of meditation for, for many decades.

[00:41:40] And I don't do it as much as I should, but I still practice Tai Chi. But I, should also say that when I write and when I get into a creative state, I can almost get into a state where I can watch new ideas emerging from my consciousness. So it's, I would call it a meditative state. The actual, you know, writing the sentences and working on the text is of course different, but the beginning where I have some Sort of the overall view and, where some creativity happens that I can almost watch happening.

[00:42:28] I would compare it to falling asleep, where you can, where you know at a certain point, if you pay attention, you know, You're going to be asleep very soon because, you know, you feel a change of I think it's technically a change of melatonin, but you feel that you're falling asleep and I feel that I'm going to be creative.

[00:42:50] And that's also a kind of meditative experience.

[00:42:54] Nate Hagens: This is a tangential comment, but speaking to you, maybe it's not that tangential. I find that 80 to 90 percent of my good ideas about the systems integration of all the different topics of the polycrisis are in the hypnagogic state right before I'm falling asleep or light right before I'm waking up.

[00:43:15] Or when I'm doing intense exercise, which is why I carry a voice recorder with me to get those ideas. Because I'll never remember them. And I think there's

some area of the brain that must quiet down and allow these connections to happen. I don't know. C. M.

[00:43:30] Fritjof Capra: Well what, what happens, I think is that we have a conscious mind and then we have a subconscious mind.

[00:43:41] And when we operate in our conscious mind, the subconscious is sort of You know, underneath, and we don't pay attention to it, but when we fall asleep, the conscious mind quiets and, you know, falls asleep, and then the subconscious arrives with dreams, or before dreams, sometimes with creative ideas, and I can tell you that Uh, Nate, that when I wrote my books, I, for years and years, I would sleep with a pencil and paper on my night table.

[00:44:16] And when I woke up, sometimes I would write things down, you know?

[00:44:20] Nate Hagens: Yeah. Long ago, I was like, Oh my God, what a brilliant idea. I'll remember this in the morning. But I never did. So I had to either write it down or have it recorded. Um, so could you say that the conscious mind is a product of humans alive today in this culture?

[00:44:41] The culture is feeding into our conscious mind and the subconscious, is more our deep connectedness, relatedness to everything and our natural kind of proclivity for things.

[00:44:54] Fritjof Capra: Yes, I would totally agree with that. And the reason is that consciousness, the type of consciousness that I call reflective consciousness, because it has, you know, conceptual thought and all of that, is related to language.

[00:45:12] You know, consciousness, self awareness arises with language in evolution about four million years ago. And language, of course, connects us with the community, with the culture. So consciousness and culture are closely related through language. And when we think in language.

[00:45:35] Nate Hagens: Yeah, I think that whole thing is fascinating.

[00:45:40] I'm going to move on. I have way more questions that I can ask you in our allotted time, but what are your thoughts on the popular popularization of the

mind and planetary systems generally as a, whole functioning like a machine, which was predominant theory for a long time?

[00:45:59] Fritjof Capra: Yeah, well, I think it's fundamentally wrong that, that the mind functions very, differently.

[00:46:07] It and there's a whole theory, when I said before that life is inherently intelligent, that is based on a theory known as the Santiago Theory uh, developed by by two scientists, Umberto Maturana and Francisco Varela in Santiago, in Chile. And it says that the interactions of living organisms with their environment are cognitive interactions, and specifically, they consist in structural changes within the organism in response to environmental influences, and in such a way that the organism.

[00:46:50] change is according to its nature and according to previous experience. And none of that happens in a computer. A computer has a rigid mechanical system and needs an algorithm to function. Needs to be fed an algorithm to function.

[00:47:08] Nate Hagens: So, you've seen a lot of technological developments in your many decades of, work and thinking.

[00:47:16] What, are your thoughts on artificial intelligence and, how that's scaling in our society and, what's ahead? Do you have an opinion on that?

[00:47:25] Fritjof Capra: Okay, yes, I do have an opinion. Because I came to realize that artificial intelligence is something we use all the time these days. We use it right now as we speak.

[00:47:38] It is connected to this whole digital world and computer world. And it is extremely useful. However, there's another kind of intelligence, which is living intelligence, which is telekinesis. tacit and always embodied and is characteristic of all life at all levels of complexity. And the key characteristic of living intelligence is the ability of being in the world, of moving around in it, and of surviving in it.

[00:48:15] And I think we run a risk with the overuse of artificial intelligence to neglect our living intelligence.

[00:48:26] Nate Hagens: So you mentioned that there was a movement in the 60s and 70s towards interconnectedness and spirituality. And then in the 90s, the internet came and globalization and it pulled us away from, where we were heading.

[00:48:44] I kind of fear that. AI is doing the same thing now. We were having this conversation around climate change and biodiversity and there's a movement building and all of a sudden there's AI and it's going to distract us again from you know, the direction that culture seems to be organically bubbling up.

[00:49:04] Fritjof Capra: And you know why? You know why? Because when you come to think of it, when you look at applications of AI and especially extreme applications, the motivation behind it is not human well being, the motivation is making more money. And so this shift from human well being to making money is, is AI is the, the enabler, the facilitator.

[00:49:30] Nate Hagens: I've come to believe it's not even making money. That's the proximate goal. The ultimate goal is power.

[00:49:36] Fritjof Capra: Yes, of course. And of course the two are related. I remember many years ago, I read a statement by a Texan billionaire in the days when billionaires were rare, you know, and, he said, You know, money is just a scorecard, so for these super rich people, money does not serve to buy things because they have everything already.

[00:50:03] But if you have a little bit more than your competitor, you know, Then that's the sense of power.

[00:50:13] Nate Hagens: So this randomly happened to me this morning. It really had nothing to do with our scheduled interview, but I went for a walk. I was looking for mushrooms. It's a morel season here in Wisconsin. And I have this app on my phone called Merlin.

[00:50:28] And I went around this corner and I turned the app on and. Within three minutes, I had 32 different bird species that I rec that the app recognize different warblers and oven birds. And, I thought to myself, I am so rich and I'm not rich

monetarily at all. But at that moment I felt, Oh my gosh, on the property 32 different species of birds.

[00:50:55] And is it possible that the billionaires of the world could have a change in consciousness where they changed how they measure wealth and, success and into a, an expanded consciousness where they recognize like you did at a subatomic level where everything is related and connected and how important this moment in history is.

[00:51:19] Fritjof Capra: Yeah, I mean, this would be wonderful, let's hope so, and let's remember that in the beginning of economics, the first economists were concerned with human well being, and that's what they called wealth, you know, when Adam Smith wrote The Wealth of Nations, he meant the well being of nations, and then it was narrowed down to money,

[00:51:44] Nate Hagens: I actually didn't, I actually didn't know that.

[00:51:48] so it was intended to be well being.

[00:51:50] Fritjof Capra: Yes, I, learned this from my friend David Korten, who wrote a wonderful article called Ecological Civilization, and he gives this brief history of economics, where he explains that, that wealth originally meant human well being.

[00:52:08] Nate Hagens: Yeah, I remember David. I used to email him a long time ago.

[00:52:12] What sort of advice do you have for the listeners of this show who are systems thinkers naturally, that's why they listen to this program, on how to expand their consciousness or the recognition or embodied feeling of the relatedness of everything? Are there practices or meditations or anything?

[00:52:35] Fritjof Capra: Yes, well, there is meditation there is you know, ecological practice in terms of agriculture, gardening, being out in nature.

[00:52:48] But I think most important of all in our time is to create and nurture communities. Because a community is a very powerful thing. powerful environment to learn systemic thinking. So you, our listeners who are systems thinkers already,

when they form communities to discuss these issues, something very powerful happens.

[00:53:18] And that is, while they are discussing conceptual relationships, They form and discover human relationships, naturally, in discussion in community. And human relationships have a very strong emotional dimension. So the conceptual dimension of systems thinking acquires an emotional charge, which is extremely powerful.

[00:53:47] And this is why systems thinking is best learned in community, in a learning community. Thank you.

[00:53:54] Nate Hagens: That's beautiful. And I hear all the time. I'm not all the time, but I hear quite often that people tune into this show because it makes them feel less alone because we're discussing all these complex, threatening ideas.

[00:54:08] I can

[00:54:08] Fritjof Capra: tell you, you know, I teach a course, an online course, based on my textbook and it's, I've taught it for eight years now and it's widely known as Capra course and I have 3, 000 alumni all over the world and believe it or not, with interacting via Zoom and in, in discussion groups, we don't meet physically.

[00:54:33] But we have created a global community of systemic thinkers and activists that is very powerful.

[00:54:40] Nate Hagens: That's awesome. So I had

[00:54:41] Fritjof Capra: a very similar experience to yours.

[00:54:43] Nate Hagens: Yeah, that, that's awesome. We'll put a link to that in the show notes, so people can check that out. Right. Wonderful. So what, sort of advice do you have for young people who are becoming aware of our ecological economic um, predicament what would you advise someone in their early twenties?

[00:55:05] Fritjof Capra: Well, today we have a situation where we have very powerful youth movements especially with regard to climate change. So we, we

have uh, you know, Fridays for Future, and we have Last Generation, and, we have all these, movements of, you know, 20 year old students and so on that, that have the right values.

[00:55:38] and that have the creativity and the passion and the ethics to advocate for a different way of being. And what I want to tell them is that we have the science that backs them up. Because my generation of elders have spent You know, several decades creating a systemic science that is completely consistent with these values.

[00:56:07] And so my wish is that we can combine these two system science that we created and the values of, you know, Greta Thunberg and these young people.

[00:56:22] Nate Hagens: So what would be some of the, recommendations for the world globally, nationally, or in a region or in a city like Berkeley or San Francisco that might emanate from a system science framework?

[00:56:37] Fritjof Capra: We mentioned that the problems of the world, the major problems are systemic problems. They're all interconnected and interdependent and underlying Most, if not all of these problems is our obsession with economic growth. Our politicians and economists believe in this absurd illusion that continual, perpetual growth on a finite planet is possible.

[00:57:06] That needs to be changed. That's the underlying motor for, a lot of our problems. And so, for the young people to really recognize that And then to work out a shift from quantitative to qualitative growth, I think, is a key issue. Q.

[00:57:26] Nate Hagens: What do you care most about in the world, Friedhoff? E.

[00:57:29] Fritjof Capra: Depends on the level, the dimension we are talking about.

[00:57:34] You know, we're, talk emotionally, I would say, actually what I just said, you know, about economic growth and overcoming that and, moving to a life of qualities instead of a life of quantities, I would say that's what I care most about.

[00:57:56] Nate Hagens: So it's my belief as a former teacher myself that young humans in grad school are incredible underutilized resource in our world to work on a systems integrated future of everything is related and interconnected.

[00:58:13] However, they work in a structure that though it has creative minded, you know, humans, the structure itself is based on economic growth and more research grants and, things like that. That's

[00:58:26] Fritjof Capra: right.

[00:58:27] Nate Hagens: So in your field and your experience, can you suggest what's a couple big questions might be that grad students and post docs who are watching this show might consider integrating and starting work that need research and answers?

[00:58:45] Big question, I know.

[00:58:47] Fritjof Capra: I would say when you look at the problems of, that we have in our poly crisis, you have to realize that they all have to do with life. With human beings, with ecosystems, with social systems, with economics, this is all part of life. So one key issue for graduate students would be to.

[00:59:17] Reflect on the nature of life. and to come to a systemic understanding of the nature of life. And this is why I created or formulated these four characteristics of life, that life organizes itself in networks, and these networks are inherently regenerative, creative, and intelligent. So for graduate students to reflect on that, and then to reflect on what this implies for their field.

[00:59:50] Nate Hagens: So that would be across disciplines, whatever discipline they're in, reflect on that and then apply it to their discipline.

[00:59:58] Fritjof Capra: And this is why it's so difficult to implement, because our academic world is structured in terms of separate disciplines. But young people have a lot of energy and they can overcome this, you know, with passion and with ingenuity and creativity.

[01:00:13] Nate Hagens: If you could wave a magic wand and there was no personal recourse to you, what is one thing you would do to change human and planetary futures? It's a question I ask all my guests.

[01:00:23] Fritjof Capra: Okay, would, I would ordain with my magic wand that there should be no money in politics, that there should be no corruption whatsoever.

[01:00:36] Today, in the United States, we have institutionalized corruption. No politician can arrive at any top to be a senator or president or whatever without being corrupt. They're all corrupt, not because of personal flaws, but it's built into the system. And to get rid of this institutional corruption of money, get money out of politics, that, that would be my wish.

[01:01:02] Nate Hagens: Well, we need people to want to have political office to serve instead of for self enrichment. And this also gets back to your core point about we're all related and, want to be in service of something larger than ourselves. And to

[01:01:19] Fritjof Capra: human well being versus making money.

[01:01:21] Nate Hagens: Yeah. Yeah. So I want to be respectful of of our agreed upon time commitment.

[01:01:28] this has been a real good introduction to you and your work. Are there any closing words you'd like to share?

[01:01:35] Fritjof Capra: Well, I'm surprised and delighted that we are really on the same path. I must say, I didn't know anything about you or your show. And, I really feel a, very fundamental, you know conceptual maybe even spiritual kinship.

[01:01:56] And this is really delightful. Thank you so much for having me.

[01:02:00] Nate Hagens: The subatomic particles are doing their job.

[01:02:03] Fritjof Capra: Right.

[01:02:04] Nate Hagens: Yeah. Thank you so much for your lifetime of work.

[01:02:07] Fritjof Capra: Okay. Thank you. Thank you, Nate. It has been a real pleasure.

[01:02:10] Nate Hagens: If you enjoyed or learned from this episode of The Great Simplification, please follow us on your favorite podcast platform.

[01:02:18] You can also visit thegreatsimplification. com for references and show notes from today's conversation. And to connect with fellow listeners of this podcast, check out our discord channel. This show is hosted by me, Nate Hagens. Edited by No Troublemakers Media and produced by Misty Stinnett, Leslie Batlutz, Brady Hyan, and Lizzie Sirianni.