Using General Collective Intelligence and ChatGPT to Powerfully Transform Education

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Abstract

A General Collective Intelligence or GCI is a model for a hypothetical platform with the potential capacity to exponentially increase the general problem-solving ability (general collective intelligence factor) of groups. Though a complete GCI doesn't yet exist, case studies of designs approximating some subset of GCI functionality appear to confirm this capacity for a vastly increased general collective intelligence factor. This paper explores the hypothesis that through the combination of General Collective Intelligence and Large Language Models (LLMs) such as ChatGPT, facts and reasoning can cross a threshold of complexity past which the difference between facts is too subtle to be perceived by humans, and past which reasoning can no longer be followed by humans at a detailed enough level to reliably replicate any logical conclusion. When the facts and reasoning generated by tools such as GCI and ChatGPT eventually cross this threshold, as it is hypothesized that they must eventually do, then it is predicted that such facts and reasoning will not be able to fit into the space of any individual's cognition, at which point they can only be described and discussed using simplifying generalizations. Furthermore, when the combination of ChatGPT and GCI produces a sheer volume of output that exceeds the capacity of any individual to consider, then arriving at any logical conclusion at all, much less a logical conclusion that is believed to be most correct given all the information, is predicted to no longer be reliably achievable, even if the reasoning required is within human capability. This paper explores the hypothesis that when tools like ChatGPT vastly increase human capacity to generate reasoning from a set of assumed "facts", then facts and reasoning become unimportant as the objects that must be communicated by learning and education, and instead the most important objects of learning and education become the patterns through which truth in facts and reasoning is identified. Assuming that current teaching methods prioritize facts and reasoning, this suggests GCI and ChatGPT will completely disrupt current education and make it largely obsolete at the leading edge of productivity.

Keywords

General Collective Intelligence, LLM, Human-Centric Functional Modeling, functional state space

1. Introduction

Human-Centric Functional Modeling (HCFM) [1] is an emerging technique that is hypothesized to enable any possible cognitive behaviors (cognitive functionality) to be modeled in a universal way. In the field of education, this creates the possibility that new insights about learning and education might be obtained where not possible in the past. Because assuming no implementation based as opposed to functional theory of education (or theory of anything else) can be complete, since the number of ways education can be implemented are potentially infinite, then no such implementation base theory could encompass any possible educational intervention and its impacts. The assumptions in this statement will be examined later in this article.

In HCFM each human system is represented as exhibiting behaviors (executing functions) that move it through a space capable of representing any possible functional states, that is, a "functional state space". While the mechanisms through which those functions are implemented might remain completely unknown, the functional state space might still be complete in its ability to represent any observed functionality. In the case of cognition the functional states are concepts, and the behaviors are reasoning processes. The functional state space of the cognitive system is then a space of concepts or a "conceptual space". In any functional state space a problem is defined as the lack of a path from one functional state to another, and the magnitude of general problem-solving ability is hypothesized to be defined as the volume of functional state space that can be searched for a solution per unit time, multiplied by the density of functional states that must be searched through. A problem is a wicked problem if it cannot reliably be defined and/or cannot reliably be solved. Defining a space of concepts or a "conceptual space" as the functional state space of the cognitive system, some classes of problems that can't reliably be defined are those that involve concepts that must be defined too precisely for the resolution of the individual or group's cognitive system, or that are too far apart in conceptual space for the individual or group's cognitive system to bridge the gap [2]. Solutions that can't reliably be discovered are again those that involve concepts that must be defined too precisely for the resolution of the cognitive system, or that require navigating a distance through conceptual space that is too far for the cognitive system to reliably sustain navigation through.
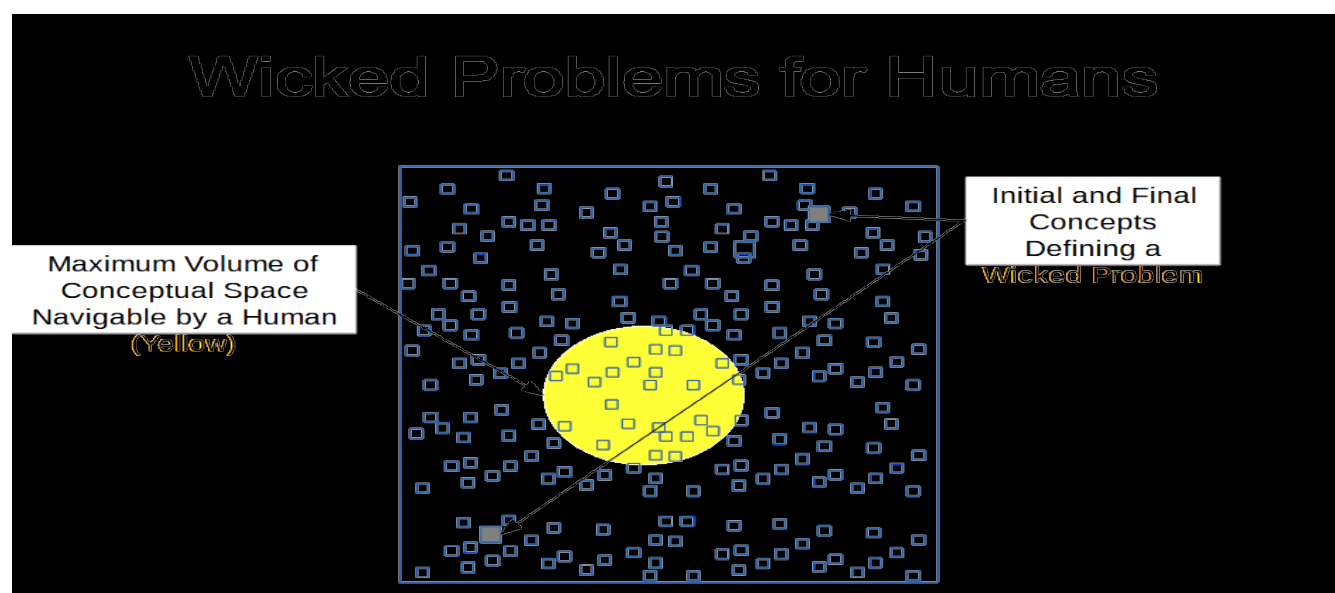

Figure 1: Wicked problems span too great a distance in conceptual space and might require concepts be described at too great of a resolution (defined too specifically) for the problems to reliably be definable and/or for the solutions to reliably be discoverable. This diagram illustrates the hypothesis that there is a maximum volume of conceptual space (yellow) that can be navigated with logical reasoning that is detailed enough to be reliably repeatable and therefore communicable. This volume might begin in any part of the individual's conceptual space. Or put more simply, no one can be an expert in everything and no one can solve expert problems without expert knowledge. For areas outside of an individual's core expertise they must use simplifying assumptions (low resolution concepts) and can't solve difficult problems using logical reasoning.

In this way, Human-Centric Functional Modeling provides a representation of the functions of cognition which suggests that facts can cross a threshold of complexity past which the difference between facts is too subtle to be perceived by humans, and which suggests that reasoning can cross a threshold of complexity past which reasoning can no longer be followed by humans at a detailed enough level to reliably replicate any given logical conclusion. ChatGPT [3] is a Large Language Model (LLM) that has recently captured news headlines worldwide for its stunning ability to generate

human text. When the facts and reasoning generated by tools such as ChatGPT, and GCI (which again might exponentially increase the general problem-solving ability of groups) eventually cross this threshold, as it is hypothesized they must eventually do, then according to this model facts and reasoning will not be able to fit into the space of any individual's cognition. At this point they can only be described and discussed using simplifying generalizations. Furthermore, when the combination of GCI and ChatGPT produces a sheer volume of output that exceeds the capacity of any individual to consider, then arriving at any logical conclusion at all, much less a logical conclusion that is believed to be most correct given all the information, might no longer be reliably achievable, even if the reasoning required is within human capability.

This paper explores the hypothesis that when tools like ChatGPT and GCI vastly increase our capacity to generate reasoning from a set of assumed "facts", then facts and reasoning become unimportant as the objects that must be communicated by education and received through learning, and instead the most important objects of learning and education become the patterns through which truth in facts and reasoning might be identified. Since current teaching methods prioritize facts and reasoning, this suggests GCI and ChatGPT might completely disrupt current education and make it largely obsolete for knowledge workers at the leading edge of productivity. In other words, traditional education might still exist, but if the coming technological changes, particularly AI, fulfill their promise of creating wealth at an unprecedented rate, recipients of that traditional education who are largely ill-equipped to receive these benefits might expect to be marginalized and to fall behind at a historically unprecedented rate as well.

2. Hypothesis

This paper will explore the validity of a two part hypothesis. The two parts of this hypothesis are:
1. When tools like ChatGPT and GCI vastly increase our capacity to generate reasoning from a set of assumed "facts", in the sense that facts and reasoning of vastly greater complexity might be generated at vastly greater speed and scale than humans are capable of otherwise, then the facts and reasoning become unimportant as the objects that must be communicated by education and received through learning, and instead the most important objects of education and learning become the patterns through which truth in facts and reasoning is identified. Since current teaching methods prioritize facts and reasoning, ChatGPT will completely disrupt current education and make it largely obsolete.
2. When the main objects of learning become the patterns through which truth in facts and reasoning is identified, then assuming a Human-Centric Functional Modeling approach to assessing truth defines truth in terms of what it functions to achieve, it becomes necessary to define such an approach in order to have the capacity to reliably discern truth. Furthermore, because no external tools yet exist that can be used to measure the functions of this human system, this approach to understanding truth necessarily requires looking inward to understand this human system.

3. Methods

The methods used to determine the validity of these hypotheses are below:
1. To assess the validity of the hypothesis that with ChatGPT and GCI facts and reasoning become unimportant as the objects that must be communicated by learning, and instead the most important objects of learning become the patterns through which truth in facts and reasoning is identified, the meaning of importance from the perspective of Human-Centric Functional Modeling was used to assess the current importance of any facts and/or reasoning in general, both in the current situation in which neither GCI nor ChatGPT are in widespread use, as well as in the future assuming the introduction and widespread use of both GCI and ChatGPT.
2. To assess the validity of the hypothesis that a Human-Centric Functional Modeling approach to defining truth in terms of this human system, and that the approach of looking inwards to

understand this human system, are both necessary to reliably discern truth in learning and education, the subsets of conceptual space where this might be expected to be true were deduced to determine if they supported this hypothesis.

4. Results and Observations

It's important to note that HCFM and GCI are fundamentally new models, and that the conclusions from those models were deduced through first principles. Therefore there are some fundamental issues with assessing the validity of these models through analogies demonstrated by research performed in the past. However, if the predisposition towards type I reasoning dominates in education research as predicted, and assuming that type I reasoning is indeed constrained to assess correctness by similarity with patterns observed in the past, it might be true that conclusions in education research that leverage such new models can't reliably be communicated using other research in education. To circumvent this potential problem, research in very different fields has been leveraged, and ChatGPT was used to assess expert consensus agreement with this research.

1 a) **The Definition of Importance in HCFM**
The importance of any independent variable in mathematics and statistics is determined by its relative impact on the output of the function. The relative impact of an independent variable on the output of a function can be measured using techniques such as regression analysis, which quantifies the strength of the relationship R between the independent variable and the dependent variable. Functional state spaces are mathematical spaces. In conceptual space, as in any functional state space, the input functional state (input concept) is the independent variable, and the reasoning process is the function that produces the output concept. Since this output concept is associated with a targeted outcome, this outcome is associated with another function that produces an outcome as well. The relative impact and therefore importance of one concept in a given reasoning process is one thing. But what is the importance of a given concept in any possible reasoning processes? Assuming that any problem is defined in conceptual space by the lack of a path from one vertex in conceptual space (one concept) to another, then the ability of any one initial concept to impact any problem corresponds to the number and complexity of paths through conceptual space from that concept that can be searched for a solution multiplied by the relative importance of each. This in turn corresponds to some volume and density in conceptual space multiplied by some relationship strength function R. Therefore, considering a particular concept as an innovation, and considering that innovation to be the variable under consideration, the increase in volume and density of conceptual space that such an innovation allows to be navigated is predicted to be a measure of its importance. According to ChatGPT, the concepts mentioned, such as conceptual space, functional state spaces, and regression analysis, have some validity in the fields of mathematics and statistics, but the specific arguments and hypotheses presented in this statement must be validated by empirical research.

1 b) **Comparison of Importance With and Without ChatGPT and GCI**
Simple geometrical arguments in conceptual space suggest that some innovations might result in an exponential increase in volume and density of conceptual space, and therefore an exponential increase in importance, assuming the increase in volume and density of conceptual space that such an innovation allows to be navigated is predicted to be a measure of its importance. One set of innovations through which this is predicted to be possible is the combination of GCI to exponentially increase the volume and density of collective conceptual space that might be navigated through collective reasoning, along with intelligent agents capable of acting on behalf of each individual to increase the speed and scale at which individuals might interact with that collective reasoning [4]. This increase is not predicted to be reliably achievable today without these innovations or to have been reliably achievable through any other means at any other previous point in human history. This suggests that GCI and LLMs like ChatGTP that might be capable of approximating such intelligent agents might be the most important innovation in the history of human civilization. Because general problem-solving ability, as measured by the general collective intelligence factor [5], is the potential ability to solve any problem in general. Therefore an exponential increase in the general collective

intelligence factor implies an exponential increase in capacity to solve problems in any discipline, whether concerning physics, mathematics, medicine, sustainable development, or any other topic, or whether concerning capacity to assess truth. An exponential increase in capacity to solve problems in any discipline, including an exponential increase in capacity to solve the problem of discerning truth, suggests the capacity to define problems, to discover solutions, and to discern truth, where doing so is simply not possible for human beings otherwise today (without GCI and such intelligent agents). According to ChatGPT, [4] is not enough to establish the validity of these claims, and the validity of these research findings must await general scientific consensus regarding the quality of the methods and data used, as well as the peer-review process.

2 a) The Definition of Truth in HCFM

To assess the subsets of conceptual space where a Human-Centric Functional Modeling approach to defining truth in terms of this human system is necessary to reliably discern truth in learning and education, an attempt was made to identify a number of patterns important to the discernment of truth, in order to determine whether they could be associated with some subset of conceptual space that could be compared with the subsets of conceptual space in which such an approach was not required to discern truth.

Some of the patterns that are expected to be important in order to discern truth are:

Potentially Necessary Patterns for Discerning Truth	Description
Understanding of the Collective Social Brain Hypothesis	The Collective Social Brain Hypothesis [15] is hypothetical cognitive bias that is believed to strongly tend to separate individuals into two halves of a collective social brain. One of these halves tends to identify with a vulnerable group and tends to prioritize ensuring rights, using type I (intuitive) reasoning to come to conclusions in matters concerning social protection. The other of these halves tends to identify as having being responsible for protection, tends to prioritize responsibility, using type II (rational methodical) reasoning to come to conclusions in matters concerning social protection. These groups assess truth in ways that are simply incompatible but that are each useful in different circumstances.
Understanding of Completeness	It is generally true and widely accepted in many fields, including philosophy, mathematics, and science, that a truth that is incomplete but that is represented as complete might instead represent a falsehood. This idea has been discussed and debated in the field of epistemology (Steup et al, 2013).
Understanding of Self-Consistency	Some truths are inconsistent with others. The assumption that inconsistent truths are both true might represent a falsehood. The validity of the argument depends on the definition and interpretation of truth. In philosophy, it is possible for two statements to both be true, but still appear to be inconsistent or contradictory. In such cases, the problem lies not with the truth of the statements, but with our understanding of the relationships between the statements and the reality they represent [18]. In logic and mathematics, it is also possible for seemingly inconsistent statements to both be true within a given system or framework, such as in the case of paradoxes or incompleteness theorems [19].
Understanding of Computability/Non-computability	It is hypothesized that some truths cannot be computed and can only be assessed in terms of their similarity with patterns of truth observed in the past. Some truths can only reliably be computed and cannot

	reliably be assessed in terms of their similarity with patterns of truth observed in the past. In mathematics and computer science, the concept of computability is a well-studied field [20].
Understanding of Necessity for Type I Reasoning for Uncomputable Problems	It is hypothesized in HCFM that type I (intuitive) reasoning is necessary to be able to discern uncomputable truths [4].
Understanding of Necessity for Type II Reasoning for Computable Problems	It is hypothesized in HCFM that type II (rational methodical) reasoning is necessary to be able to discern computable truths [4].
Understanding of Human-Centric Functional Modeling of Cognition	It is hypothesized in HCFM that Human-Centric Functional Modeling of Cognition is necessary in order to have the capacity to model all the behavior and properties of cognition so that it is possible to discern the truth of any observation about the cognitive system [4].
Understanding Importance of First Person Perspective	It is hypothesized in HCFM that where external methods of observing the functions of the human system do not exist, first person observation of human functions is required. In order that these observations be reliably scientific, and truthful, the properties being observed must be defined in the functional state space of the human system being observed, so the truth of the observations might be assessed using common patterns for assessing truth in functional state space [4].
Understanding Importance of Third Person Perspective	It is hypothesized in HCFM that where external methods of observing the functions of the human system do exist and are more precise, third person observation of human functions is beneficial. In order that these observations be reliably scientific, and truthful, the properties being observed must again be defined in the functional state space of the human system being observed, so the truth of the observations might again be assessed using common patterns for assessing truth in functional state space.
Understanding Importance of First Principles Reasoning	It is hypothesized in HCFM that first principles reasoning is required wherever conclusions are deduced from a model that has no analog, as opposed to being deduced by analogy with other works.
Understanding Importance of Reasoning by Analogy (Opposite of First Principles Reasoning)	It is hypothesized in HCFM that reasoning by analogy is required wherever conclusions are deduced from their similarity with patterns of solutions observed in the past, in which case conclusions must be deduced by analogy with other works.
Understanding a Functional Definition of Truth in terms of Functioning to Achieve an Outcome	It is hypothesized in HCFM that every truth is defined as the degree to which some entity functions to achieve an outcome. That outcome is considered to be the truth of that entity [17].
Understanding a Functional Definition of Individual Cognition as Achieving Individual Optimization	It is hypothesized in HCFM that the function of every individual's cognitive system is to accomplish "individual optimization". Truth for individuals is then defined according to this function [2].
Understanding a Functional Definition of Collective Cognition as Achieving Collective Optimization	It is hypothesized in HCFM that the function of a group's collective cognitive system is to accomplish "collective optimization". Truth for groups is then defined according to this function [2].

Table 1: *Potentially necessary patterns for detecting truth.*

2 b) **Comparison of Capacity to Discern Truth With and Without Looking Inwards**

Truth related to objective reality outside the body might be assessed with external tools. However, despite ongoing efforts in fields such as neuropsychology, cognitive science, and philosophy of mind to better understand the nature of subjective experiences and their relationship with objective reality, neither perceptions or sensations in the body, emotions in the heart, reasoning in the mind, or

awareness's in the consciousness can currently be measured with any external tools. Though it is possible to measure signals in the nervous system, and though in some cases those signals can be correlated with such perceptions or sensations, only the individual's consciousness can reliably detect awareness any human perception, and therefore only human consciousness can discern truths related to any awareness in the human system at this time. Furthermore, having the capacity to reliably discern truth through one's conscious awareness doesn't just require consciousness, it requires some understanding of how to direct one's consciousness to the awareness of a given truth. Furthermore, any truth that is too complex to be communicated within the time that an individual might dedicate to learning it without having an understanding of the importance of that truth beforehand, is a truth that can't reliably be communicated in a logical way. In such cases, it might be that all that can reliably be communicated is an intuitive understanding of the importance of that truth to the listener, so that the listener might dedicate a sufficient amount of time to acquire an awareness of this truth on their own. In this sense, discerning truth requires some degree of "seeking" truth so that one might acquire this awareness on one's own.

To compare an individual's capacity to discern truth with and without looking inwards, it is worth considering that all human perception, and all systems that can be observed by this human organism, can potentially be represented within some functional state space, and truth in any one functional state space has been observed to potentially have patterns that might be shared with all functional state spaces. One of these patterns is that all reasoning is a path through the functional state space of the cognitive system (the conceptual space), but some reasoning paths are truthful and other reasoning paths are untruthful in that they don't reliably function to achieve a particular targeted outcome. In this case, it has been hypothesized that truth can potentially be modeled in terms of a signal through the channel defined by a given channel reasoning process, in which case the truth of reasoning is given by Information theory, with greater truth corresponding to a greater impact on the targeted outcome [17]. If such a conceptual space can be mapped out, then the truths that are discernible through external means such as intellectual frameworks, for example. discerning whether a claim is true according to Piaget's Cognitive Development Theory [21] might be compared to the truths that are only discernible through looking inwards, and the relative importance of each approach determined according to the volume and density of each subset of conceptual space relative to the other. Subjectively however, due to the incompleteness of any given theory, as we will assume that no theory spans the entire conceptual space, then no theory can completely be translated into another, therefore no theory can completely be used to assess the truth of another. As a result of the fact that for many human systems the functional state of those systems can't yet be observed through any external tools, along with this fact that no intellectual reasoning framework can be complete or can be used to assess the truth of all other reasoning frameworks, it might be surmised that looking inward is more important in assessing truth (under the condition that one has a viable model for inner truth).

5. Discussion

By understanding the mechanisms through which the human organism evaluates truth, it might be possible to use tools like GCI and ChatGPT to assess truth in vastly greater volumes of vastly more complex facts and reasoning than humans can navigate unassisted. If so, the implications are that in the coming world in which ChatGPT exists in education, the most important learning to be conveyed might be how General Collective Intelligence or GCI platforms with the assistance of LLMs like ChatGPT might multiply the intelligence of groups, how GCI might be leveraged within each academic discipline to multiply capacity to do research as well as to solve problems in that discipline, how that GCI enhanced capacity might multiply the societal impact of each discipline.

In terms of learning tools and materials, the vastly greater general problem-solving ability of a GCI at least conceptually creates the possibility of constructing personally customized learning materials on the fly from whatever permutation and/or combination of components that is predicted to be most fit at conveying a given lesson to a given student in the context of their individual real-time experience. This means that every student might potentially be given in essence a different text book

to read that is engineered to be maximally stimulating. At the same time, this also means the potential to individually map each lesson to a common standard for performance, creating the possibility to test the understanding of all students according to a common metric where required.

Education, especially in technical subjects like engineering is "constantly evolving to keep up with the latest technological developments and meet the changing needs of the engineering industry" [6]. There is still no consensus among educators as to the role ChatGPT should play, with many wanting to limit access, but some saying it would be better to make them part of the curriculum [7].

One study piloted ChatGPT in engaging students in scientific practices to learn and use disciplinary core ideas and crosscutting concepts [8]. ChatGPT was used to provide learning guidance and learning materials based on the response. Results suggested that ChatGPT has the potential to tackle the most challenging problems of science learning through automatic assessment development, automatic grading, automatic learning guidance, and automatic recommendation of learning materials. But it also suggested that teachers need professional knowledge to use ChatGPT for instructional purposes and that ChatGPT is a black box in terms of how it generates automatic results, and that this black box needs to be explainable so that students, teachers, and parents can fully appreciate its merit.

To some researchers in education, telling the difference between ChatGPT and a human is reliably achievable through techniques such as looking for "substance, not style. Ideas, not information", as well as through looking for critical thinking. According to one such individual "researchers have long known how to tell the difference" [9]. Others say plagiarism detection tools can't even flag essays written by LLMs [10].

Some suggest that AI is clearly a threat to schools that value a banking model education (a model based on the "deposit" of ideas and content in students), but that the solution is changing education rather than banning AI [11].

Some of the potential opportunities that have been identified with the use LLMs in teaching are: personalized learning, lesson planning, language learning, research and writing, and professional development. Some of the potential challenges and risks that have been identified with the use of LLMs in education are: bias and fairness, learners may become too reliant on the models, teachers may become too reliant on the models, lack of understanding and expertise, difficulty in distinguishing model-generated from student-generated answers, cost of LLM training and maintenance, data privacy and security, sustainability of usage, cost to verify information and maintain integrity, difficulty of distinguishing between real knowledge and convincingly written but unverified model-generated output, lack of adaptibility, as well as the lack of multilingualism or fair access [12].

In any case as automated technologies like LLMs, AI and platforms continue proliferating and expanding in reach and scale there is a growing recognition that they "open up a range of important issues that are becoming increasingly urgent across the education sector – whether in schooling, higher education, lifelong or workplace learning" [10]. Rather than trying to separate what learners can do on their own, at some point it might become more important for educators to know what a person can do with tools rather than without [13].

However, all of this might just be a catalyst to engage with the deeper meaning education was always meant to have. Various visionaries have been communicating for some time this message that there is a different perspective of learning than that traditionally taught, one that permits deeper and more powerful insights. Nikolai Tesla, one of history's most enigmatic among these, has been quoted as having said "The day science begins to study non-physical phenomena, it will make more progress in one decade than in all the previous centuries of its existence." From the perspective of Human-Centric Functional Modeling, the interpretation of this comment is that currently the non-physical phenomena studied by the inward looking traditions such as existentialism is almost completely ignored. However, by providing a mathematical interpretation of non-physical phenomena such as cognition,

representing them in terms of paths through functional state spaces, the whole concept of functional state spaces is meant to as a bridge between the outward looking disciplines such as physics and mathematics, and such non-physical phenomena. In the yogic tradition, the massive following of the yogi Sadhguru attests to the value that a great many people in that tradition place in his words. Sadhguru himself has quoted the statements of Tesla, and in addition has said of of AI that "professions as you know it today will become meaningless, so you must be equipped with something beyond your intellect" [14].

5.1. LLMs, GCI, and Education in the Science, Technology, Engineering, and Math (STEM) Disciplines

What this might mean is that in the future, when a super-intelligent GCI is able to orchestrate a network of AI based agents in coming to any decision, then even without any knowledge of medicine at all a user might be able to leverage that GCI to conduct surgery and other medical interventions that the best doctors in the world today would consider miraculous and completely beyond their abilities. Users could potentially do so simply through being able recognize the truth regarding which of the vast number and combination of possible interventions can be observed to best improve the condition they are trying to heal. Or which set of interventions best prevent the condition entirely. As another example, even without any knowledge of physics at all, one might be able to leverage a GCI to discover new theories in theoretical physics that are completely beyond the capacity of any human physicist today to discover. Once all data is modeled semantically, as required for GCI in any case, users might be able to do so by simply asking the GCI to show all the phenomena across the entire physical universe where some observed data isn't consistent with any theoretical understanding, and then using GCI to vastly increase capacity to consider any permutations or combinations of any component of any existing theory in discovering a solution.

5.2. LLMs, GCI, and Education in the Languages and Humanities

Tools capable of real-time audio translation of languages and real-time generalization and retrieval of metaphorical and allegorical symbolism from the humanities by large language models has both the potential to accelerate learning of languages and the humanities on the one hand, as well as the potential to eliminate the need for learning languages or humanities at all on the other, thereby making their current study obsolete. But such tools also create the potential to vastly increase the importance of the study of languages and the humanities in general when new methods based on HCFM and GCI can be applied. For example, if and when real-time voice translation is available, there will no longer be any need to learn any other human language other than one's native tongue. But at the same time, the ability to study and compare all languages could potentially explode. In the humanities, when LLMs have the ability to abstract metaphorical or allegorical symbols from written works and to generalize them to the context of the current conversation in real-time, so they might be inserted into the conversation in real-time, then the need to familiarize oneself with works like Plato's "Allegory of the Cave" as a famous example of allegory, in order to be able to draw from symbolism like that of the serpent as signifying the tempter or true evil, is a need that simply disappears. However, again, at the same time the ability to study and compare all works in the humanities could potentially explode.

6. Conclusions

In a world in which teachers might soon use generative text to generate learning materials on the fly, where those materials might customized for each student based on powerful shared learning experiences like a class trip to a museum, and in a world in which students might use generative text to generate the answers, the most important outcomes of education might not be transferring facts or reasoning, but instead will likely be conveying a functional definition of truth in terms of that which functions to achieve an outcome, and also conveying over the years of the students education, a

successively more profound understanding of the patterns through which truth are identified, so that tools like ChatGPT and GCI might be used to assess truth in vastly more complex facts and/or reasoning than humans have the capacity to navigate unassisted.

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