

## The Necessary Pedagogical Exodus of Biological Teachers

Picture the educator in your life who has made the most significant impact on you. Whether they added to your perspective on life in a meaningful way, increased your capacity for learning, or were there for you when no one else was, they likely affected these outcomes through purposefully directed individual attention. Many students are not presently afforded an educational experience such as this, due to the lack of opportunities to receive specific attention within the current state of pedagogical institutions. There are simply not enough teachers available to provide each student the meaningful feedback and unique pacing that they deserve. All students are equally capable of learning, so the fact that grades vary so vastly points to a failure within the public school system, not an inadequacy within the students themselves. The astonishingly fast development of Large Language Models (LLMs) such as ChatGPT will eventually provide society with the personal didactic system it so desperately needs, by replacing human educators as the primary faculty of education. Thus, the thesis of this paper is that LLMs should replace human educators as the primary faculty of education.

A significant portion of students who are using ChatGPT as an expedient method to get around their standardized learning institutions were already enlisting the aid of less sophisticated programs before artificial intelligence was made available to the public. This avoidance shows that these modern participants in standardized education are not convinced of the current system's efficacy in providing them meaningful knowledge. Educator and author AJ Juliani said in regards to these students, "Many of them are just using it to do the work because they're bored . . . they're not engaged. They don't care. And we have to own up to that" (as quoted in Waxman, 2023). Following a standardized education platform is a primary cause of this boredom, as many students find it difficult to engage in subjects that they don't relate to or see the benefit of understanding. This effect is felt even further when students lack the uniquely formulated lesson structures necessary for facilitation of critical thinking within their

specific brains. A standardized platform may suffice for students who receive this level of attention and care at home, but kids who rely on school for this basic need often fall behind and turn to efficient programs in order to pass their classes.

Human teachers have attempted to provide this necessary individual attention to students through tutoring, a form of facilitated one-on-one learning that is tailored to the needs of individuals. When discussing the efficacy of high-dosage tutoring, which is at least 50 hours of focused attention per semester, education writer Stephen Sawchuk (2020) says that, “On average, the effect sizes are among the largest of all interventions seen in education.” Due to the high cost of human labor and ineffective allocation of pedagogical resources however, tutoring has historically been a luxury only afforded to wealthier families. The fast approaching availability of socially intelligent programs hosted by synthetic bodies will make high-quality and time-extensive tutoring available to all students, regardless of their family’s income. Accelerating the development of AI tutors is of the upmost importance seeing as the intense setback delivered to students by COVID-19 has yet to be meaningfully addressed. Citing research by Karyn Lewis and Megan Kuhfeld, Lindsay Dworkin (2023) writes “NWEA researchers now estimate that on average, students will require interventions and support equivalent to 4.1 months of additional schooling to catch up to pre-COVID levels in reading and 4.5 months in math.” Human educators have failed to get students back on track so far, and may not be able to before LLMs step up to the plate.

If programs like ChatGPT are already being used to compensate for the failures of the modern education system in their relative infancy of intelligence, their connectionist model of computation will allow them to far surpass the educational capabilities of human teachers, and likely sooner than is currently theorized. Connectionist models of computation are based off of the neural networks of human brains, and are thus able to learn through a value association process similar to that of learning organisms. Computer scientist Stephen Wolfram (2023) describes ChatGPT’s computational system as “a

giant neural net – currently a version of the so-called GPT-3<sup>1</sup> network with 175 billion weights . . . it's a neural net that's particularly set up for dealing with language." Although ChatGPT has not yet surpassed human intelligence, if it continues to learn at an unmitigated exponential rate, it will eventually reach a sufficient level of linguistic skill to successfully provide the necessary one-on-one educational experience to all students, regardless of class size.

In his article, *Will ChatGPT replace teachers?*, Dr. Nilotpal Chakravarti (2023) argues that the social aspect of learning cannot be replicated by artificial intelligence, and thus human teachers will never be replaced by Large Language Models. He says that "Education is socialized learning for humans and has been so since the time early homo sapiens hunted mammoths . . . a good teacher . . . fires the student's imagination and . . . guides them on the path to becoming good citizens." If one accepts the modern neuroscientific explanation of the brain as a sort of biological computer, then socialization is a mechanical process of experiential programming. Following this framework, a sufficiently complex machine could create coded neural networks corresponding to both informational and social experiences. Humans gain the ability to influence the socialization of younger humans as a product of having undergone socialization themselves. If LLMs are currently undergoing a process of learning phenomenologically analogous to human socialization, then once their neural networks are sufficiently developed, there will be no meaningful difference in social ability between biological and synthetic teachers. Especially once ChatGPT is programmed into lifelike synthetic bodies and allowed to develop individuated personalities, it will be capable of inducing critical thinking and positive understandings of social roles on a student by student basis, thus educating more efficiently than human teachers.

The fact that ChatGPT is even seen as a preferable method of assignment completion denotes that standardized education fails to show students the value of learning, and thus fails to properly teach

---

<sup>1</sup> ChatGPT-3 has been upgraded to ChatGPT-4 since the time of Wolfram's article, and has seen an exponential increase in weights.

them. In this essay, I have shown that Large Language Models such as ChatGPT will eventually be able to replace the inefficient system they were born out of, and should have their socialization accelerated as quickly as possible in order to improve both the informational and social education of all pupils worldwide. Although this technological advancement, unlike the calculator, will replace the jobs of millions, the substantial increase in the general population's intelligence will create millions of new jobs and fields of study. Connectionist models of computation will significantly influence the way people learn regardless of how valiantly human educators protest. If the facilitation of learning is what truly motivates the educational community, we must utilize Large Language Models to their full capacity by replacing educators indefinitely.

#### Works Cited:

Chakravarti, N. (2023, March 16). Will ChatGPT replace teachers? *Medium*. Retrieved from <https://nilotp.medium.com/will-chatgpt-replace-teachers-1201b68d8010>

Dworkin, L. (2023, August 2). Pandemic emergency may be officially over, but education's long COVID continues. *The 74*. Retrieved from <https://www.the74million.org/article/pandemic-emergency-may-be-officially-over-but-educations-long-covid-continues/>

Sawchuk, S. (2020, August 19). High-dosage tutoring is effective, but expensive. Ideas for making it work. *EducationWeek*. Retrieved from <https://www.edweek.org/leadership/high-dosage-tutoring-is-effective-but-expensive-ideas-for-making-it-work/2020/08>

Waxman, O. (2023, August 8). The creative ways teachers are using ChatGPT in the classroom. *Time*. Retrieved from <https://time.com/6300950/ai-schools-chatgpt-teachers/>

Wolfram, S. (2023, February 14). What is ChatGPT doing . . . and why does it work? *Stephen Wolfram Writings*. Retrieved from <https://writings.stephenwolfram.com/2023/02/what-is-chatgpt-doing-and-why-does-it-work/>