

The Cognitive Development Track: Notes for a proposal

Jon Bosak

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[The proposal itself would be prefaced with an explanation of the problem of LLM use in schools, a review of anecdotal horror stories from real teachers and college professors, and references to early research that shows actual cognitive damage from LLM dependency occurring even now.]

1. The Concept

Cognitive Development Tracks are degree-granting programs within existing secondary schools and colleges in which students perform all classwork in the classroom. Their purpose is to produce cognitively able adults mentally equipped to deal with the challenges of the future. “Cognitively able” means that graduates are literate, numerate, knowledgeable about the world they live in, and capable of independent analysis and judgement.

The development of independent judgement requires that students in Cognitive Development tracks perform all coursework (including the part traditionally assigned as homework) totally isolated from Large Language Models and social media. No attempt is made to limit their access to these sources outside of school, which would be futile.

2. Insulating the Student

The key technical challenge to implementation of the Cognitive Development Track is the design of ways for students to perform academic work completely isolated from LLMs and social media. Fortunately, this technical requirement is trivial to meet. A system that could provide this functionality might look like this:

At the point where written composition is expected from students (in the sixth or seventh grade in the U.S. system), classes become structured around terminals with keyboards and high-resolution video screens which are permanently connected to the school classroom server. Students grab a terminal from the shelf upon entering the classroom and log into the server via biometric ID. All input and research for that class takes place through the terminal.

All the terminals support basic word processing capability. (Whether to enable this through installation of a free word processing package like LibreOffice on the terminal or provide access to the same functionality in a program running on the server remains as a separate design decision. Similarly for calculators, graphing programs, simulations, etc.) Student access to anything associated with a class exists only when present in that particular classroom during that particular class.

Access to a curated library relevant to the subject at hand is available through the terminal, drawing partly on internet sources accessed through the server acting as gatekeeper and partly on locally developed materials resident on the server, including source readings pertinent to each class. Many college courses are already structured

around downloadable collections containing more readings than students actually complete in a semester, so this is nothing new. These sources can be printed and studied outside the classroom.

Once created, such subject libraries should be more than adequate for Cognitive Development, since the goal during this decade is on knowledge acquisition and training in analysis and composition, not original research. (Handling LLM dependence in graduate programs that do require real research is left as a separate problem.) Note that limiting input to a finite set of possible sources makes it trivially easy to automatically check student papers for plagiarism or sloppy attribution.

While no limit is imposed on student access to LLMs and social media outside the classroom, their direct input to the student's work in the classroom is limited to what the student has copied out on paper, by hand, and brought into the classroom, and the instructor can readily monitor this behavior simply by observing the class. Since the mental effort involved in obtaining and hand copying outside sources trains the very skills the school exists to promote, such notes may even be encouraged in some classes.

3. Logistical Challenges

From the preceding description it can be seen that the isolation of students from LLMs and social media during school hours is not the challenge. The hard part is classroom logistics, in particular, facilities management.

A class that used to meet for one hour five days a week and expected an hour of homework each day must now meet for two hours a day, one for instruction and one for "homework" that actually gets done in the same classroom, and the demand on facilities is therefore doubled. The physical problem can expensively be mitigated by building more rooms, and the increase in supervisory time can be met by hiring less skilled invigilators for "homework time," but a larger issue is the need for modifications in the way that classes are scheduled.

Since all "homework" is now done in class, the school day can be extended to include the late afternoon and after-dinner hours during which homework has traditionally been carried out in the past. To avoid scheduling collisions, however, it will generally be necessary to sharply restrict any variation in the classes taken, with the exception of time slots dedicated to art, music, or a generic requirement such as foreign language instruction.

Thus, for logistical reasons, CD Track students in a particular grade will generally all be taking the same subjects within the same time slots. The result will resemble the fixed curricula of schools a few generations ago—not an outcome that we might have wished before the LLMs arrived, but one that would be no challenge to design for or implement. We already have models of what the last four years of this would look like in successful schools based on a one-size-fits-all liberal arts curriculum like St. Johns College.

4. Implementing the Cognitive Development Track

Simply switching four-year colleges to the CD model would be pointless, because any student educated in an LLM-assisted environment for six years is going to be hopelessly

unequipped for the rigors of an academic setting in which it is no longer available. Students must be kept isolated from LLM dependence from the moment they are required to perform research (of any kind) and required to write something based on that research.

It should be possible, however, to implement a completely isolated schoolroom environment in grades 7-12 of existing private schools and thus, after the first six years of the program, produce a cohort mentally equipped to begin four-year college Cognitive Development programs prepared in the interim. And those programs could be separate CD tracks within each college, parallel to traditional classroom instruction while that is being phased out.

The earliest adopters of the CD approach are likely to include private schools organized around a single religious or cultural viewpoint, such as “classical” schools, because a method of instruction requiring gatekeeper access to sources readily fits doctrinaire goals. (But it should be remembered that the CD concept does not seek to limit the student’s access to sources outside of the classroom, which would be a problem of a different order entirely; it just requires all text input to take place there.)

Homeschooling offers another avenue for the development of students prepared to enter a 4-year college CD program. Here the key is the use of the same secure terminal-to-server architecture described previously, with the server end rented out to families by companies providing ready-made curricula and materials in packages designed for the larger groups of homeschoolers (evangelical Christians, organic farmers, academic traditionalists, etc.).

5. Economic Considerations

The largest single capital expense in the implementation of a Cognitive Development Track is the upfront cost of the student terminals. But the hardware needed to support this use can be created by starting with a stripped-down (and therefore less expensive) version of an existing cheap laptop, like the chromebooks currently being issued to students in many school systems. Built on top of a free operating system such as Linux, the necessary terminal apps (word processor, HTML browser, graphics display, calculator) can be assembled from existing open source components. The only significant programming task for the student terminal is the creation of a communication layer limiting all wireless connectivity to the specific router in that classroom. For security purposes, this should probably be coded from scratch by the hardware provider and contain just the functions needed for this particular use rather than being created by turning off features in existing code. Classroom server hardware could also be built inexpensively along the same lines and with the same requirement.

Given significant adoption of the Cognitive Development model, it can be expected that a small number of systems integrators will emerge to provide turnkey server solutions specifically designed to support classroom interaction. Many existing instructional packages could be retrofitted onto these platforms for training in basic subjects. It can also be expected that a small number of publishers will emerge to provide curated online libraries for training students in research and analysis, probably on a subscription basis.

For example, it is easy to imagine a curated version of JSTOR as the foundation for such a service.

6. Marketing and Social Considerations

It would obviously be best for human society if the Cognitive Development method were adopted by all school systems. But with trillions of dollars being invested in making the population dependent upon LLM assistance and “informed” by social media, this seems unlikely.

The holders of CD degrees will therefore (unfortunately) constitute just a small percentage of the adult population, most of whom (including graduates of existing colleges) will have become unable to exercise independent judgement in any meaningful way. And because CD graduates really will be operating at a different level of mental ability, they will constitute a de facto intellectual and functional elite, whether this truth is openly acknowledged or not.

For marketing the concept, then, it’s possible that the line of least resistance is to position Cognitive Development as overtly elitist, however that might be deplored in a world that gave us any other choice. Cognitive Development graduates (or their homeschooled equivalents) really will be the brains running the country, so that would be an easy and truthful pitch to make to the parents.

The risk here is the recreation of the wealth-based access to schooling that existed before universal public education. A preview has been playing out already as public education deteriorates, but LLM dependence will turn even expensive private schools into factories for the production of functional idiots unless they isolate along the lines describe above. Finding ways to independently fund Cognitive Development schools will be essential to growing our leaders in a process that is not limited by class boundaries.

To keep Cognitive Development education affordable, it may be necessary for parents to contribute to the extent of their ability and for students to contribute significant manual labor directly to the operation of the school. This would also provide an education in many real-world skills. Deep Springs College is an example of a school operating on this principle.

7. Accreditation

To maintain standards and define the meaning of a CD diploma, it will be necessary to form an organization for the development of guidelines for Cognitive Development education and methods for assessing adherence to those guidelines. As the computing environment described above will likely come in the form of off-the-shelf configurations provided by a small number of system integrators and content providers, accreditation will largely be concerned with vetting these systems and libraries. Accreditation for homeschooling may require annual exams administered in group settings the way that SATs are administered today.

8. The LLM Reality

Since the system described here assumes the inescapable ubiquity of LLMs, including a central role in real-world processes, it could be argued that CD graduates will be at a disadvantage in a world that requires their skilled operation.

One answer is to repeat that the student has unlimited access to LLMs outside of the classroom in this model. But there is good reason to think that this is not going to be a real problem anyway. We already have overwhelming anecdotal evidence of the damage to student analytical abilities caused by reliance on LLMs in just the last couple of years, and we have early research that confirms this deterioration. It is safe to say that the graduate of a CD-based high school and college, given a month of instruction in the use of AI tools, will be far better prepared to use those tools intelligently than any graduate of a program that allows the student to develop a dependency on them.

LLMs do have a significant role to play in the practical implementation of the CD model, however. We learned in the 1960s that many subjects can successfully be taught simply by requiring the student to take an exit test for each unit and allowing the test to be repeated as many times as the student requires until they can meet the exit criterion. The difficulty here has always been the task of constructing an unlimited number of unique tests. For many basic subjects, LLM test generation can provide such a capability and much more, allowing students in some subjects (languages, for example) to proceed at their own pace and giving them the biggest educational benefit that LLMs can actually provide.