On the future of education in a digital society

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Abstract

In this paper, I propose a framework for the future of digital education by reconceptualising education as linguistic proficiency across the diverse "languages of information", notational, constitutive, and calculative. Linguistic proficiency is the capacity to understand, use, and create meaning through a system of symbols and rules at multiple levels: comprehension, accurate production, fluent expression, appropriate use in context (pragmatics), and reflective control (metalinguistic awareness). I generalise this beyond spoken and written tongues to encompass any "language of information", emphasising fluent "reading" and "writing" within each medium to interpret information and generate original ideas. In an information society where the boundaries between users, observers, and designers are increasingly fluid, education must transcend the traditional tension between facts ("know-that") and skills ("know-how") by cultivating design-oriented capacities for making, critiquing, and remaking information systems. Two principal consequences follow. First, education is redefined as the cultivation of *semantic capital*—the intangible cultural and intellectual resources that give meaning to human existence—thereby positioning learners as contributors to our collective reservoir of understanding rather than mere consumers of content. Second, mastery of information languages is shown to shape personal identity, determining the horizons of participation, agency, and self-conception in a post-AI landscape. I therefore argue that educational institutions should prepare learners as creators and designers who unite making with knowing how to use what is made, thus equipping them to expand semantic capital and to act with critical, ethical, and imaginative competence in complex digital environments.

Keywords: Design-oriented thinking, Information literacy, Knowledge creation, Linguistic proficiency, Semantic capital.

1. Introduction

Education in the twenty-first century needs to be rethought for an increasingly digital, information-rich world. In this paper,[1] I propose a conceptual framework that views education as linguistic proficiency, meaning that learning in any field mirrors learning a language. By considering knowledge and skills as forms of literacy, the framework emphasises how mastering the "languages of information" enables learners to navigate — and influence — the modern world. In the second part of the paper, I explore two implications: education as the cultivation of semantic capital, and education as a means of shaping personal identity in the digital age. The discussion also critiques educational approaches that risk making learners passive consumers of knowledge. Instead, it advocates for active knowledge creation and design-oriented thinking to promote critical engagement in the information society.

2. Education as Linguistic Proficiency

The idea of education as linguistic proficiency suggests that learning any subject is akin to learning a language—a system of symbols and rules for meaning-making. In this perspective, students should gain fluency in the various "languages" used to create, express, and process information. These "languages of information" include natural languages (e.g., English or Chinese), formal and numeric codes (such as mathematics, logic, and programming), artistic or notational systems (musical notation, visual design, architectural blueprints, cinematic storytelling), and scientific languages (from archaeology to zoology). Mastering as many of these languages as possible enables learners to "read" and "write" in each medium, interpret information, and convey original ideas within it.

Education becomes fundamentally about literacy in these forms of information: the ability to read and write—to acquire, create, design, understand, use, and communicate knowledge—in any symbolic form. Like any language, these proficiencies are best learned through early, immersive practice rather than rote memorisation. Importantly, true fluency is not just recall or routine performance, but

[1] This is an extended synthesis of a paper on education as linguistic proficiency that I was invited to give at the Jubilee of Educators meeting in Rome, October 27–November 1, 2025.

advanced abilities developed through authentic use. Viewing education as linguistic proficiency shifts focus from memorising facts to developing adaptable, creative abilities comparable to mastering a living language. As digital technologies expand, educators increasingly take on the role of instructors of new literacies.

As digital technologies proliferate, educators become "e-ducators", teaching the languages of information — from coding and data analysis to data ethics and critical media literacy — that enable students to participate fluently in a digital world. This approach prepares learners to expand their repertoires continuously, in line with the evolving information landscape.

3. From Passive to Active Knowledge

Adopting a linguistic proficiency model addresses key challenges in the current education system, especially in a digital society that is post-APAPI (Availability, Processability, Accessibility, Producibility of Information). Many modern systems prioritise foundational knowledge ('know-that') and measurable performance ('know-how'). While both are essential for succeeding in the "game of knowledge", the risk is in favouring passive retention and procedural know-how, which fosters a culture of *users* and *consumers* rather than *designers* and *producers*. To move beyond this, education must encourage active knowledge creation and higher-order thinking. The framework proposes rethinking learning in terms of roles within the "game of knowledge". Traditional curricula mainly prepare students as *players* (end-users of existing knowledge), but a comprehensive education should also develop observers (critics analysing the game itself) and *designers* (innovators who create new games or rules). If schooling focuses solely on producing good players, it risks creating a "luxury box": an ivory-tower scenario in which students become *passive spectators* rather than *active contributors* to knowledge creation.

Therefore, a well-rounded learner, can be described in three evolving roles:

- Alice the User knows how to play the knowledge game successfully by mastering existing rules.
- Alice the Intellectual knows how to study the game critically and question its underlying assumptions.

- Alice the Designer knows how to devise and reimagine the game by creating new rules and frameworks for knowledge.

Education should develop all three abilities in students—not just practical skills, but also critical questioning and creative innovation. These qualities (analytical and design-focused skills) are precisely the traits that a narrow, assessment-heavy approach often overlooks. In today's information economy, information is both the raw material and the finished product of human effort. Students, therefore, need "maker's knowledge": the skill to create, design, transform, curate, and communicate information, which bridges the traditional divide between episteme (knowledge-that) and techne (knowledge-how). Cultivating such creators produces graduates who are not only skilled in using existing knowledge but are also capable of generating new ideas and artefacts, making them active contributors to the knowledge society.

4. Education and Semantic Capital

Reframing education as linguistic proficiency also redefines its purpose: it becomes a means of building and transmitting society's semantic capital. Semantic capital refers to the wealth of meaningful intangible artefacts and practices that humanity collectively creates and shares: our ideas and insights, cultural and religious traditions, languages, arts, scientific knowledge, narratives, and other cultural artefacts. We use this reservoir of meaning to make sense of our existence and the world, and it plays a significant role in shaping our identity. Education, therefore, can be viewed as learning how to acquire, curate, create, and share our semantic capital. By teaching students the languages in which our collective knowledge is encoded, we grant them access to the ongoing human dialogue—enabling them to understand the ideas passed down to them and develop new ideas of their own. In this way, learners become not just recipients but active contributors to the shared pool of meaning. Consequently, the educational enterprise serves a higher purpose beyond vocational training: it is a process of cultural enrichment and innovation, ensuring that each generation inherits the intellectual riches of the past and builds upon them for the future.

5. Education and Identity in the Digital Age

Finally, viewing education as linguistic proficiency highlights the strong link between knowledge and personal identity, especially in the digital age. Today, individuals increasingly exist as data subjects, defined by the information they create as "data citizens," "data workers," "data patients," and so on. The extent of one's education—basically, the range of languages of information they can use—directly shapes the boundaries of one's world and self-concept. As Wittgenstein famously said, "the limits of my language are the limits of my world" (*Tractatus Logico-Philosophicus*). In the same way, the limits of a person's information languages are the limits of their education and identity. In other words, someone who is only literate in a narrow area will have a limited ability to think and act, while someone fluent in many types of knowledge can see and shape a much broader reality.

This perspective suggests that a rich, multi-literate education is essential for personal empowerment. If a student's literacy is confined to a single mode of thinking or communication, their capacity to engage in society and influence their own future is constrained. Conversely, each new "language of information" a learner acquires broadens their cognitive and social horizons, enabling them to adopt fresh perspectives and roles. For example, learning the language of music allows a student to become a creator of songs rather than merely a consumer, while mastering the symbolic language of data science empowers one to model and solve real-world problems rather than simply relying on others' analyses. Therefore, a comprehensive education in multiple literacies prepares individuals to navigate complex information environments as confident actors rather than passive subjects. In the digital age, this empowerment is crucial: those who can question and innovate within information systems will shape their own identities and communities rather than be dictated to by external technologies or narratives.

6. Conclusion

In summary, viewing education as linguistic proficiency offers an updated paradigm for 21st-century learning. It combines factual knowledge and practical skills into a unified focus on meaning-making and expressive ability across various media. This approach overcomes the shortcomings of current methods by ensuring that students

are not just trained to perform, but educated to understand and innovate. The result is a generation of learners who are critical participants in the information society rather than passive consumers of content, equipped to expand semantic capital and reshape their world through new knowledge. For both educators and students, this approach shifts the primary purpose of schooling toward fostering meaningful understanding and creative skills, rather than focusing solely on performance metrics.

This vision of education also resonates with enduring philosophical insights. It echoes Plato's description of *the true knower as one who knows how to ask and answer questions* (*Cratylus*, 390c), highlighting the importance of inquiry in learning. It aligns with the Platonic idea that *the highest knowledge involves a union of making and knowing how to use the thing made* (*Euthydemus*, 289b), fundamentally combining creative production with wise application. By nurturing learners capable of both critical analysis and imaginative creation, education in the 21st century reaches its highest potential: empowering individuals to shape their world with wisdom, ethical insight, and imagination.