Programming literacy: an essential skill in the digital age

What I think of as literacy is the ability to read and write, i.e., people's ability to understand and use language. This is common in our everyday lives, and mastering literacy is like having basic learning skills. When we learn a new language or anything that is new to us, looking up information is equivalent to understanding, and when we practice based on that information, it is equivalent to using. Having basic literacy skills is not just about facilitating communication and reading and writing; I think it actually rises to the top of many topics as the basis of everything because you can only talk about something if you understand it first. Just like young people have the basic literacy skills to get a job, get out of poverty, and integrate better into society, thus reducing crime rates In the same way, computer programming is referred to as literacy, which means acquiring the ability to read and write computer programs, first by finding information or tutorials to learn about computer programming, and then by understanding this information and applying it to your own practice and creativity. I believe that computer programming is an important skill for modern society, as digital technology is becoming more and more popular, and the era where everyone can program is now halfway to being realized. A programming language is a language with strict syntactic and semantic rules, like a natural language. When we master a language, we are better able to understand and solve problems.

According to Vee (2017), "Coding literacy is a basic human literacy, like the ability to read and write.", This supports my view that coding literacy has become an essential and basic skill in modern society, proving that people have become increasingly aware of the value of coding literacy in helping people solve problems and create new things. "Coding literacy is not just a technical skill; it's a way of thinking.", This quote helped me to better understand the nature of coding literacy, pointing out that it is not just about specific technical programming operations but, more importantly, a way of thinking. Learning how to think and solve problems is at the heart of coding literacy. Problem-solving in this context is not just about using technology to solve problems but tends to be more about using this kind of thinking, i.e., in a similar way to computational thinking. Computational thinking refers to the thought processes involved in formulating a problem and expressing its solution in a way that a computer—human or machine—can perform effectively" (Wing, 2014). These processes include systematic thinking, logical thinking, creative thinking, abstract thinking, etc. These ways of thinking are all closely related to coding and are essential to learning to code and using coding to solve problems. At the same time, these ways of thinking can also help people perform better in other areas. In the arts, coding literacy also plays a key role. "Visual coding refers to coding using graphical tools. It uses graphical interfaces and tools for programming, converting code into a visual

graphical representation through the use of elements such as graphical formations, panels, and connectors. With visual coding tools, coding is no longer the exclusive domain of the technical expert; instead, coding becomes a shared practice, enabling greater access and participation (Blackwell et al., 2022). Graphical tools make coding easier to understand and manipulate.

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