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The relationship that people have with information technology can be described through the following four levels of knowledge: ignorance, familiarity, literacy, and fluency.

I am not going to refer to ignorance, since "ignorance is bliss" according to a long held belief that seems to apply to many aspects of our everyday life.

Being familiar with information technology can only reveal a "no-brain" activity where people know how to operate a device on a very basic level.

Things are starting to get interesting when the state of familiarity is replaced by the state of literacy. This state renders people capable of communicating with computers, through the use of contemporary media applications, by means of receiving (input), operating and transmitting (output) data. Although literacy in information technology enables people to comprehend computers, it does not provide them with the "vocabulary" necessary to master the medium and moreover to follow the constant swifts in the computer-world. Unfortunately, literate users, although they are capable of producing computer works, they only do so within the boundaries of the application.

Most applications are created with the rational of generalizing the demands of their "target" users. Even though they are composed of many layers, they only reveal their "front layer", the interface, which is the one that visualizes the boundaries of action. Some applications may try to create a friendly appearance by letting the user to personalize the interface with changes in color, font and background or even with the creation of new toolbars. But in any case, what one sees is what one gets. The rest of the application's capabilities are inexorable. To be able to explore the medium requires the ability to speak the same language that it speaks. In other words, to be able to program it. Communication is then at its best.

This brings us to the fourth state of knowledge in the information technology domain, the state of being fluent. The National Research Council (NRC) describes fluency with information technology as "the ability to reformulate knowledge, to express oneself creatively and appropriately, and to produce and generate information (rather than simply to comprehend it)". (Resnick, Kafai, Maeda, pp.2) It is a creative state where people are capable of using (operating, manipulating, changing, making variations of, PROGRAMMING) the medium in order to express themselves. Fluency is the only means to overcome the boundaries of the computer applications and set creativity free.

[and my architectural touch...] For the architectural domain, programming is the gateway to fantasy; a digital realm where the scientific mind can meet with the artistic one and animate one's imaginary world. It is the means to exploit the capabilities of the medium to the maximum level and the road to a cornucopia of form finding techniques. The capabilities of the digital media that can be reached through programming (scripting in this case) and have been proved to be of highest importance for the architectural practice are:

a. The process of 3d or 4d diagrams, b. The folding and deformation of forms c. The simulation of force effects in a time-based environment d. The representation of phenomena that exceeds the human comprehensiveness e. The application of complex mathematical and physical theories, such as fractals, topology, non-linear dynamics, chaos and quantum theory f. 3d spatial coordination.