Pain Versus Gain


This year's editorials all focus on one specific problem—the inability of our educational system to adequately deal with the worldwide Information Age changes.

Previous articles have suggested that our formal schooling system needs increased help from our informal educational system. This article explores how making education more "fun" might decrease some of the burden faced by formal education. If students willingly devoted more of their non-school time to relevant learning activities, that would reduce some of the pressure on the schools.

The word "fun" is closely related to play-like, enjoyable, entertaining, and so on. If an environment has such characteristics for a particular person, the person is inclined by intrinsic motivation to want to spend time engaged in that environment. Of course, what is fun for one person may not be fun for another.

**Work or Play**

Some people feel that learning requires hard work. "No pain, no gain."

Some people feel that learning can be fun. Seymour Papert, who is well known for his work both in Logo and in Artificial Intelligence, is a strong proponent of designing "fun" learning environments.

The human brain is designed so that it is both naturally curious and so that it automatically learns when it is engaged. Many people have noted that a tremendous amount of learning occurs with little formal instruction or formal study before students start school. They also note that many students spend immense amounts of time becoming experts in various fields—for example, in role-playing games or a particular type of dancing—that don't happen to be part of our current school curriculum.

We know, of course, that the academic disciplines are broad and deep. Many years of sustained, hard effort are required to achieve a reasonable level of mastery in even a single discipline. For example, our educational system includes mathematics as a core subject that students are to study year after year. This leads to a modest number of students getting through a year of calculus—a level of mathematics that is only a couple of hundred years old.

One might argue that this is precisely the case for "no pain, no gain." For example, unless you are willing to put in a great many years of hard work in mathematics, you will never even get near the frontiers of knowledge in this field.

Perhaps the key issue is that attaining a substantial amount of knowledge and skills in any area requires a great deal of time and effort extending over many years. A combination of intrinsic and extrinsic motivation moves a person toward making and sustaining such a commitment of time and effort. If the knowledge and skills to be learned are highly intrinsically motivating (fun), for a particular individual, this may lead the individual to make the necessary commitments.
**Athletics**

Many people devote a great deal of time and effort to mastering a sport such as basketball or ice skating. They put in thousands of hours of time over a period of years. This may be done in an informal environment with little or no formal coaching. Or, it may be done in a formal educational setting with an intense amount of coaching.

In either case, a great deal of learning occurs—there is development of the body and the mind. Moreover, it is clear that quite a bit of transfer of learning occurs. For example, general physical fitness, teamwork, leadership, self-reliance, and self-esteem are apt to transfer.

Thus, sports can be held up as a model of "fun" activities in which important learning occurs.

**Edutainment**

Discussions similar to those we are pursuing in this article may lead to considering entertainment versus education. The combination is sometimes called "edutainment." Can and should education attempt to compete with entertainment? Can we design educational environments that are as intrinsically motivating as the various entertainment environments that are common in our society? Will the edutainment industry prosper?

The idea in edutainment is that we may be able to create environments that have three characteristics:

1. They compete effectively with other activities that people consider to be intrinsically "fun."
2. The underlying learning that occurs is consistent with, supportive of, and equally cost effective as more direct study.
3. The learning that occurs in the "fun" environment transfers readily to making use of the learning in the "real world" environment. Also, the learning adequately prepares the student to eventually deal with the traditional modes of instruction in the field.

There is no longer any doubt that edutainment materials can be developed that satisfy conditions 1 and 2. The developers of edutainment environments need to be putting more thought and effort into the issue of transfer of learning to the real-world application areas and to more advanced studies.

While I can conceive of having fun learning environments at the beginning levels in almost any field, it is harder to believe that such fun learning environments will be created that will carry the learner to the higher levels and to the frontiers of each discipline. Thus, at some stage, the learner will be faced by the "no pain, no gain" environment.

Meanwhile, I look forward to more and better edutainment materials becoming available. Clearly such materials will have a major impact on our formal educational system.