

The following were among the participants:

Dr. P. Narasimha Reddy, Director, Srinidhi Institute of Science and Technology

Ch. Venkateswara Rao, Member Secretary, Chief Administrator, Vignana Jyothi Society

Dr. B. Chennakesava Rao, Principal, Chaitanya Bharathi Institute of Technology

Dr. N.V. Koteswara Rao, Prof. & Head, Electronics & Communications Engineering, Chaitanya Bharathi Institute of Technology

Prof. R. Sreenivas Sarma, Head, Civil Engineering, Chaitanya Bharathi Institute of Technology

Dr. Suresh Pabboju, Prof. & Head, Information Technology, Chaitanya Bharathi Institute of Technology

Prof. P.S. Raju, Director, Gokaraju Rangaraju Institute of Engineering and Technology

Dr. K.S. Rao, Director, Anurag Group of Institutions

Dr. Veeranna Bommakanti, Director, Aurora's Scientific, Technological and Research Academy

Dr. N. Sambasiva Rao, Principal, Vardhaman College of Engineering

Fortress Mentality in Education: The Need for Technological Windows

Deepak Patri¹ and Patri K. Venuvinod²

¹ Founder and CEO, PunditBox.com, USA

² Emeritus Professor, City University of Hong Kong

"I do not want my house to be walled in on all sides and my windows to be stuffed. I want the cultures of all the lands to be blown about my house as freely as possible. But I refuse to be blown off my feet by any."—Mahatma Gandhi

A *pundit* is someone who is erudite in one or more knowledge domains and is prepared to offer his/her knowledge to one or more knowledge-seekers for free or for a fee. He/she may be a freelancer or committed to a particular employer long term. He/she may or may not possess formal qualifications. The fact that he/she is able to attract some student(s) is sufficient to be recognized as a pundit.

A *student* is someone who is seeking to learn in the context of one or more knowledge domains. He/she may or may not be willing to pay for the learning. He/she may be a freelancer or committed long term to a particular educational institution.

In ancient times, *pundits* taught face-to-face one or more *students* sitting literally at their feet (see Figure 1). Pundits were supposed to be omniscient, i.e., all-knowing. Students were expected to be sincere, obedient, reverent and totally committed.

The scenario is similar in today's educational institutions except that students in each class receive knowledge asynchronously from a set of disparate pundits drawn from departments delineated essentially according to the local convention.

One feature of this institutional architecture stands out. Classes are walled in. Departments are walled in. More remarkably, the entire institution is walled in. It is as if no pundits or students exist beyond the walls. Outsiders are irrelevant, except for publicity. Think for yourself but without breaking current rules and conventions. We want growth. But it should be harmonious. The result is sporadic incremental growth, e.g., a change in the current performance review/incentive system.



Figure 1

However, there is a serious downside to the fortress mentality. The fort's interior gets progressively darker and the air around staler (see Figure 2). Any wind (sound, or light) entering from the outside is carried essentially by the students of the institution (attending classes is only a part of their daily schedule). By virtue of their youth, students always are more free-spirited. Modern youth also use Twitter, Facebook, and the like, a lot. *There is thus a need for technological windows that allow rejuvenating wind (light) to pass into and from the institution* (see Figure 3).

Technological windows will yield several tangible as well as intangible benefits:

- The normal instinct of educational institutions is to rely mainly on in-house teachers. But good teachers are scarce. Since most societies (Finland is an exception) do not pay teachers well, the situation is unlikely to improve in the short to medium terms. This problem is particularly acute in developing societies, rural settings, societies that have recently been through severe societal trauma, and the like. Therefore *there is an urgent need for educational institutions to exploit technologies that make it easier for them to draw on pundit-resources distributed world-wide*.
- Barring competency-development for a specific job, education must aim to meet students' life-needs and be applicable, hopefully, over their lifetimes. In the contemporary world, lifetime educational needs go well beyond structured knowledge known to be needed while engaging in a specified profession as of today. They must include the attitudes (e.g., authority versus the individual) and the learning and creativity-skills needed to cope with an ever-changing world. The pace of change itself is increasing rapidly owing to more frequent appearance of disruptive technologies and, largely due to them, a wider acceptance of secularism, globalization, and the like. Yet, sadly, most colleges continue to adhere to anachronistic 'principles' based on producer convenience or set pedagogy rather than on changing student needs, wants, and delights. Today's low-paid teachers and administrators with local mindsets are not able to meet the new needs. Therefore there is already a strong need for institutions who have acquired the ability to draw teachers' (pundits') from diverse and widely distributed backgrounds.
- World demographics has been changing dramatically in recent times. Fertility rates have fallen below the replacement rate in nearly half of the world. Malthus and Gandhi could not anticipate this—even intellectually. As a result, populations in many developed countries are aging rapidly. This has resulted in a growing but idle pundit-resource. This unprecedented resource needs channels for expression coupled with income generation. This also constitutes a great opportunity for developing societies. They can accelerate development by exploiting the under-expressed expertise available in developed countries. If that were to happen, under-employed 'oldies' in the developed world would be delighted. Thus *there is a need to establish technological windows capable of exploiting this unprecedented demand-supply imbalance with regard to pundit-resources*.



Today
Complex but
Organized

Figure 2



Tomorrow
Complex but
Organic

Figure 3

Whether the technological windows introduced should result in a breeze or gust is up to the institutions. Different institutions have different cultures, budget constraints, and academic/administrative freedoms. However, we believe that the larger and the more numerous the windows, the faster will be the institution's progress towards international competitiveness. Graduates from internationally competitive educational institutions tend to be significantly more open, individualistic, and change-seeking. Consequently, rather than being preoccupied with the

academic scores awarded and professional competencies acquired, they dabble in unconventional, creative, innovative, and entrepreneurial ventures. Such people are more likely to meet Gandhi's exhortation: "Be the change you wish to see in the world!"

In Gandhi's time, there existed few easy alternatives to face-to-face teaching. This meant that the teacher and student had to be at the same place, at the same time. Fortress mentality was a direct consequence of this constraint. But the spectacular growth in Broadband Internet, rich media, and so forth over the last decade has shifted the possibility frontier dramatically. Today, there exists an impressive array of cost-effective technologies capable of supporting *remote* interactions among individuals and groups. Further, the quality of such interactions is rapidly approaching the quality of face-to-face interactions. In some respects, technology-aided interaction has gone far beyond all-human interaction. For instance, using technology, Khan Academy has been able to offer, for free, an "extensive video library, practice exercises, and assessments from any computer with access to the web" while providing "unprecedented visibility into what their students are learning and doing". *Educational institutions are advised to keep track of such well-developed technologies and apply them as quickly and as widely as possible. This will of course require curricular modifications and changes in classroom techniques.*

It should be clear by now that the authors are seeking to go well beyond the matter of educational technology *within* the prevalent institutional business model; they are seeking to shake up the business models themselves. To follow this exhortation is certainly not easy. To appreciate the magnitude of the difficulty, just compare the illustrations labeled 'Today' and 'Tomorrow' above.

The picture for 'Today' is neat and tidy. Everyone knows his/her place and role. Somehow space defines who you are. You may complain sometimes of being pinned down; but you are secure. So you revert back.

In sharp contrast, the picture for 'Tomorrow' is far from being tidy. It is in fact quite ugly. But it is dynamic and organic. It is exciting; particularly to youth and youthful elders. It is forward- rather than backward-looking. The fact however is that, in most educational institutions, youth is relatively rare among the decision-making echelons. These echelons will not loosen up until there is sufficient demand for change.

The most legitimate springboard for such demand is the institution's student body. They are the customers after all. Fortunately, they also outnumber institutional decision makers one-to-ten. They are also far more in sync with the latest in the world. Thus, the key to the success of the Technology Window Movement (TWM) lies in mobilizing learning communities across the world broadly towards the need for establishing technological windows.

With a view to facilitating such mobilization, an organization called PunditBox.com has been launched recently by the authors. Figure 4 clarifies PunditBox's mission.

As you can see, The PSI-Net (or the Ψ -Net) is at the heart of PunditBox. Ψ -Net is being designed to be capable of acting as a platform for social networking efforts aimed at motivating pundits, students, and institutions across the world to link up educationally (see Figure 5).

The initial growth of the net will depend critically on getting a large number of institutions registered. Registered institutions are expected to get all pundits on their rolls to be registered. They are also requested to encourage all the students on their rolls to register and participate vigorously.

We expect many more freelance pundits and freelance students to register as the net expands and becomes socially vibrant through the efforts of institutions. This is the main difference between the Ψ -Net and other social networking nets such as Facebook. In fact, the Ψ -Net will go much beyond mere socialization by supporting the location, recruitment and contracting the services pundits/students across the world.

In addition to creating and maintaining it, PunditBox will use the Ψ -Net to pool and distribute knowhow on how technological windows (T-Windows) to the world could be established in a cost effective manner in different parts of the world. All this knowledge will be made freely available on the net. Pundit Box hopes to become in time a one-stop shop for T-Window establishment.

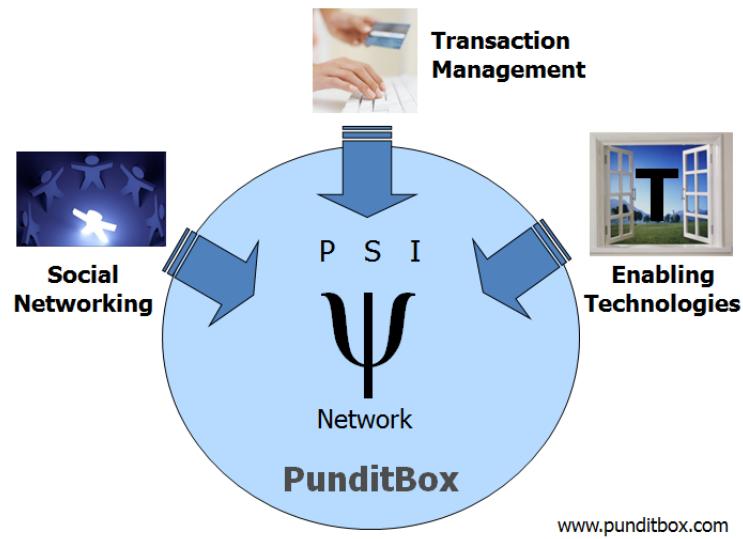


Figure 4

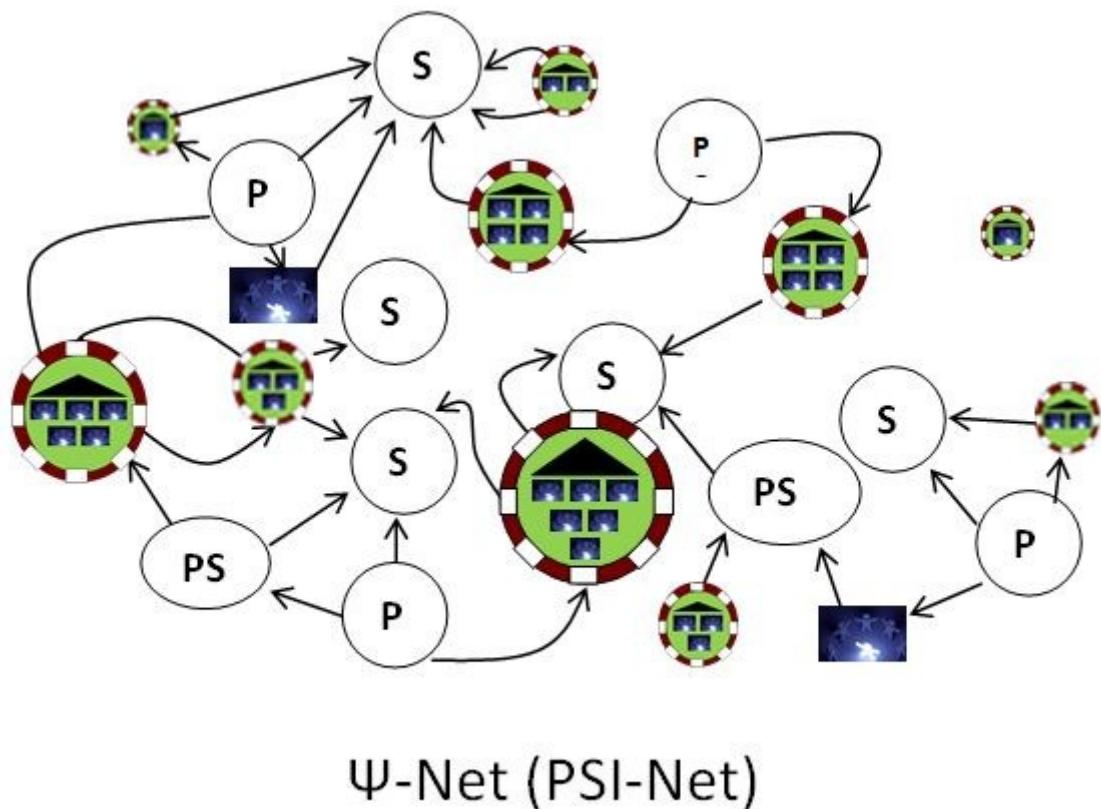


Figure 5

However, as with all social networks, membership on the Ψ -Net will be free. Likewise, all knowhow concerning T-Windows pooled via the net will be freely available to members..

However, it would be naive to think that TWM could be sustained solely on the basis of altruism (freebies). Recent business management literature has shown amply that, in order to be sustainable, even social ventures need a sound business model.

What is PunditBox's business model? It is simple and straightforward: Collect a small fee on every monetary transaction consummated on and via Ψ -Net (see Figure 5).

Note: You may write to patrivenu@gmail.com if you want to know more about or engage with PunditBox.

An Advertisement

Venuvinod also wishes to bring to your attention his publication of a trilogy titled *Technology, Innovation and Entrepreneurship*. Part I is titled *My World, My Nation* as it examines TIE interactions from a world-perspective but stressing nation-building. Part II—titled *My Firm*—discusses how an established firm could prosper in the contemporary world of globalized competition. The third part—titled *My Startup*—addresses issues of particular importance to the growing number of youth pursuing an entrepreneurial career.

E-book editions of the trilogy for reading on PC, eBook readers including Kindle and Nook, tablets including iPad, or a range of smart phones may be bought from Amazon.com, Smashwords. Print-on-demand (POD) paperbacks are available from Amazon.com and Lulu.com and are shipped normally within two days. Hardcover editions may be bought from Lulu.com.

To purchase, just go to Venuvinod's website tecinnovent.com and follow the instructions. There you will also find 20% discounts on paperback editions.

About the Trilogy: It has become clear in recent times that the key to economic growth is technology (T), that to technology growth is innovation (I), and a powerful contributor to innovation is entrepreneurship (E). Yet there seems to be a paucity of academic books covering the large variety of issues involved in TIE-exploitation in a contemporary manner. This textbook-trilogy seeks to fill this gap.

The origins of this trilogy lie in the class notes compiled by Venuvinod while teaching 'Management of Technological Innovation' to science, engineering and business students at the bachelor's, master's, and doctoral levels. The final contents have been influenced strongly by the insights derived by the author while living in India, the UK, Hong Kong (including extensive travels to mainland China), and the USA. Thus, rather than focusing just on the lessons to be learnt from the experiences of a developed country such as the USA (as most books on the themes examined do), this trilogy empathizes with the biases and concerns of the developed as well as developing parts of the world.

Contents of Part I My World, My Nation: Techno-economic history of the world. Philosophies of science and technology. The industrial revolution. Theories of economic growth. Economic downturns. The roles of technology and culture in national development.

Contents of Part II My Firm: Diffusion of technology. Industry dynamics. Competition. Competitive advantage. Competitive forces. Strategy development. Research and development. R&D management. Technology and market forecasting. Organizational culture. Organizational structure.

Contents of Part III My Startup: The relationship between entrepreneurship and the economy. Individual, social and corporate creativity. Education for creativity. Innovation portfolio management. Risk-taking. Product development.

Appeal

1. Please persevere in persuading your superiors, peers and contacts towards building technological windows in their respective institutes.
2. Please promote Venuvinod's movement towards promoting the growth of *Technology, Innovation and Entrepreneurship* (TIE) all around you. One way is to read Venuvinod's trilogy with the same title.
3. Please visit regularly (and publicize) Venuvinod's website, <http://www.tecinnovent.com> and enjoy the many scientific and professional articles, books, slideshows, and videos presented there on subjects as wide as engineering education, engineering management, mechatronics, manufacturing engineering and industrial engineering. Also check out YouTube for several short videos illustrating the technical challenges even degree and sub-degree levels can undertake. If you think your students can beat the ones presented, write about them at tecinnovent.com, YouTube, and wherever else you wish. Venuvinod will be delighted to publicize them.
