

BUILDING A GOOD INSTITUTION

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This is a concern that many educationists, planners and promoters have struggled with, as they endeavour to set up a truly good institution. I tend to believe that very few persons would deliberately set out to build a bad institution. They all express the wish to set up a good institution, sometimes even an outstanding institution. But this dream fails for a variety of reasons. More often than not, it is because they are not clear about what it takes to build a good institution. The task is made more difficult by the fact that there are no standard recipes that would guarantee success. Each effort of institution building is often unique in some significant way, which makes superficial copying of institution building experiences elsewhere either a non-starter, or one that only 'flatters to deceive'. However, without resorting to a recipe approach, I believe it is possible to outline some strategic approaches which can be of help. In delineating these strategies I have certainly benefited from some published analyses of institution building and also admired their insights, but, most of all, I have drawn on my own limited experience, perceptions, persuasion and belief system that have emerged in the course of my struggles with this issue over several decades, albeit in

different contexts and different responsibilities. Let it also be said that institution building is never complete; one never 'finally' arrives; and, the challenge never ceases. The returns - in terms of satisfaction, pleasure or sense of achievement derived from the efforts put in — lie not in some definite 'end-point' but the journey itself. In my view only those should engage in institution building who believe in good processes as much, or even more, as any end-goal. This may appear contrary to conventional wisdom, which emphasizes a dichotomous view and separates 'means' from 'ends' but in institution-building developing robust processes themselves can be viewed as 'ends'.

Why do I speak of a 'good institution' rather than a 'great institution' or an 'excellent institution'? For one, great institutions are few and far between. For another many have been the beneficiary of serendipitous circumstances - happy accidents of history - which propelled their growth and placed them in a special, privileged niche. For yet another, many have enjoyed the luxury of time - of evolving slowly and steadily over extended periods - something that may not be available to new institutions. The term

'excellent institutions', in as much as it connotes 'to excel others', externalizes the issue. The reference frame shifts to institutions outside. There is no telling *a priori* whether or not the external frame comprises of good institutions and whether it makes sense to compare with them at all. Purely external measures tend to be fickle and lead to unstable approaches and uncertainty. While external measures, surely, can provide some feel for what is considered relevant by the user outside, and help the institution to take due account of this perception while setting its current objectives, my basic argument is that good institutions are designed primarily around 'internal yardsticks' of what is good. Let me take the example of 'placements' to illustrate the point. In external perception a good placement record is often seen as a proxy of a good institution. However, if the economy is not growing and throwing up demand for additional persons even good institutions will have difficulty placing all its students. And, if there is a general shortage, even mediocre institutions can boast of full placement. Placement alone, therefore, cannot be a meaningful measure of how good the institution actually is. One must look for more intrinsic measures.

The Input Dimension

You cannot build a good institution with bad material, obviously. Good inputs are essential - good buildings, good infrastructure, good faculty and good students.

Faculty

Let me begin with good faculty, because that is the most crucial input. There is considerable empirical

evidence that good institutions place heavy emphasis on acquiring high quality faculty. In an analysis of leading 'high performing knowledge institutions', Tushar Shah points out that "leaders of HPKIs give high priority to talent-search; they treasure competence and talent; and judge their own effectiveness by the criterion of the quality of people they are able to get on board and retain by 'getting them big and making them big'".

Quality faculty is the most valuable resource that an institution can have. Building a good institution is inconceivable, a real non-starter, without quality faculty. And, in some ways this is the most difficult resource to mobilize. An institution builder must, therefore, display firm commitment to acquiring quality faculty. Often there is a temptation to make do with 'what is easily available' now and hope that the quality of faculty resource can be improved gradually. In surrendering to this temptation one has effectively lost the battle already. Good academics are usually attracted to an institution by the 'gravitational pull' of other good faculty. Good academics help pull in other good academics because good academics need true peers for their own professional success. The converse is also true; a mediocre faculty is unlikely to attract a good academic to join it and, if by chance one happens to come along, unlikely to retain him/her for long. Sometimes a truly sad thing is seen to happen. The good academic stays but gradually deteriorates to the average level of the faculty.

Numbers also matter. The institute must have adequate size of the faculty to create a 'critical mass' in each of the main areas of knowledge it deals

with. Below the minimum critical size, effectiveness of even high quality faculty is greatly diminished. Regular professional interactions with many others from the same field, it has been observed, helps to push up general standards of academic activity, and sustain higher levels of overall activity across the institution.

Conventional approach of advertising for faculty does not necessarily help in recruiting quality faculty. Exceptions apart, more often than not, the persons you would really like to have do not respond; they are already in good positions elsewhere and would not ordinarily take the trouble. Such persons have to be proactively pursued, attracted and persuaded to make a shift. Institutions in the government framework usually do not have sufficient flexibility to follow the latter approach but it is not entirely unknown. Leading institutions like the IITs, IIMs and IISc have often resorted to the proactive approach. I have known of several Directors and Chairmen who have actively gone around searching for talent, within and outside the country, and made offers on-the-spot. In building a good institution such initiative is not only to be welcomed, it could well be demanded since, in my view, one of the key strategic roles of an institutional leader is to build a high quality faculty resource. Unfortunately, however, in our environment where it is not unusual to suspect motives or raise doubts about such decisions, the proactive approach is not easy to follow. Only persons with high personal credibility and established reputation for integrity can successfully use this flexibility. Many institutional leaders who are not so well known may find it safe to stick to the conventional route

even at the cost of not getting the very best faculty. This needs to change. It should be recognized that advertisement is but one route and all possible routes for identifying and recruiting good faculty should be taken. It is also not difficult to design a system of checks and balances to prevent possible misuse. (Having said this, I must share my distaste for tying the hand and feet of the leader. We need to develop a culture of trust in the leader and, of appointing trustworthy persons to leadership positions in the first place!)

Recruiting quality faculty is only the first step in building a good faculty resource. Considerable effort must go into ensuring that this vital resource is continually built up. Institution must have in place specific strategies and plans that help to build professional competencies and academic stature of the faculty. Good institutions are in fact distinguished from the others by the value they add to members of their faculty and building them into outstanding professionals. One has only to look at some of the high performing institutions in the country and abroad to see the validity of this statement. In the process, the institution also benefits from the increased stature of its academics, in many different ways - improved institutional brand; attracting higher quality students; floating new and innovative programmes that are also financially viable; attracting national and international resources for research, consultancy and training activities; building academic partnerships and collaborations with leading institutions, national and international; role in national initiatives, policy making, planning and implementation; being consulted by

national authorities on important matters; having a credible voice and the capacity for effective advocacy of important issues and concerns; etc. Even more importantly perhaps, from the view-point of the institution, is the benefit in terms of its increased ability to retain quality faculty in the institution. Suffice it to say, it pays to invest in the development of the faculty resource.

In attracting and retaining quality faculty, better pay and higher emoluments certainly help but only up to a point. Attraction of more money apart, better pay is sought partially for its psychological value. From the perspective of the employee it is seen as a reflection of the value management attaches to the person's intrinsic worth. If the management is willing to pay more than the usual norm, even marginally, person's sense of self-worth and satisfaction improves greatly. This point came up very tellingly at the time of the Fourth Pay Revision by the Central Government. Faculty of the IITs and IIMs wanted higher pay-scales in comparison to the general university system. Many arguments were advanced in support including their higher 'market value' in comparison to their counterparts in other institutions. Not all arguments were strictly tenable, but, ultimately in the wash it came out that even a minor differential would satisfy them as it would be perceived as a recognition of their higher value/contribution.

It would be interesting also to look at what other aspects are prized and what relative value is attached to emoluments. Hans Thamhain, in a study of research engineers' attitudes, listed a set of values in priority order.

The highest priority expressed by the engineers was for work opportunities that provided: interesting and challenging work, a professionally stimulating work environment, and professional growth. Next in order of importance to the engineers' expressed values were conditions of leadership and groups which provided: overall, complete, and capable leadership, and tangible rewards. Then in order of importance were desires for such aspects as: management assistance in solving administrative problems, clearly defined objectives, capable management controls, senior management support, good interpersonal relations, and open communication.

Even though the above is not a study of the attitudes and values of engineering faculty in Indian institutions, I am tempted to believe that many of the same concerns and priorities would be articulated by the faculty here. Good faculty, as professionals with skills and ideas, want, first and foremost, conditions in which to develop and use their skills and ideas, and be rewarded for it. Pecuniary rewards are important for monetary as well as psychological reasons as pointed above, but good professionals put even higher priority on opportunities for professional growth and professional fulfilment. There is an important lesson in this. It is not enough to attract quality faculty through higher emoluments, you also have to provide them opportunities for professional growth and achievement. Faculty is not like ordinary workmen where pecuniary reward alone would satisfy them. Quality faculty, like other high level professionals, seeks intangible rewards of professional growth in addition to tangible monetary

rewards.

Combining the two strands of thought that, quality faculty brings many benefits to the institution and, what factors attract and retain quality faculty and help in delivering performance, it is clear that a good institution would make a strategic commitment to, and invest adequate resources in faculty development.

Students

Once during mid 80s when we were engaged in developing the new *National Policy on Education*, in a meeting presided over by Shri PV Narasimha Rao, then Minister for Human Resource Development, a member was speaking vehemently about the faculty issue. To emphasise the point he was making, he said, "teachers are at the centre of educational institutions..." Sh Narasimha Rao immediately corrected him and said, "No, students are at the centre...". It made us pause and rethink. It was a sobering thought to realize that students indeed were the *raison d'etre* of institutions. Howsoever important the role of the teacher, it was students who gave purpose to the institution.

Quality students are at the core of a good institution. Without quality students it is simply not possible to have a good institution. A good institution is known, by definition, by its high academic standards. Such standards would be impossible to put in place, and realize in practice, if student quality were inadequate. Setting a meaningful teaching/learning agenda, operationalising good pedagogical approaches, maintaining academic rigour, achieving desired learning outcomes - none would be

possible realistically if student quality were below a certain level. I am reminded of a statement by Gibbons, "*the power of instruction is seldom of much efficacy except in those happy dispositions where it is almost superfluous.*" To me this means that good instruction will achieve little if the students are not of requisite quality, and that instruction is effective only when student quality is such, and the ability to learn so well developed, that a meaningful dialogue can take place between the teacher and the student. From the perspective of a good teacher too, it is frustrating to teach poor quality students; the level of educational process drops, the subtleties and nuances of concepts cannot be explored fully, and the inherent excitement of beautiful ideas cannot be conveyed effectively. Conversely, when the students are of high quality an altogether different dynamics prevails, level of discourse/discussion rises automatically, and the teaching/learning experience becomes more rewarding and mutually enjoyable.

An important strategy for building a good institution, therefore, is to have a high quality student-body. It is not for nothing that prestigious institutions go to great lengths to admit high quality students. Indeed, many argue it is the students who make the IITs and IIMs what they are. This is not an entirely fair comment in that it de-emphasizes many other strengths that these institutions have, but it does serve to focus on their key strength - the quality of their student intake.

A good institution would, therefore, spend a great deal of energy and thought on selecting the students to be admitted. Unfortunately in our

context, where the number of students seeking technical education is huge and the supply of good institutions relatively small, many good institutions fall into the trap of admission 'by elimination' of large numbers that they simply cannot handle, rather than by positive 'selection' of worthy students - by careful evaluation of their quality and potential. Even prestigious admission tests are designed more to eliminate, to trip as many as possible (by putting them under severe time pressure, or asking tricky questions, or asking questions much above their standard), so that in the end they have a more manageable number. If one were concerned truly with selecting quality students, one would worry about such issues as: what makes for a quality student, how does one measure the potential of a student, validating criteria for selection against latter-life performance, etc. One would use results of educational research elsewhere and also conduct own research in designing admission tests. If, despite these shortcomings in admission tests, top institutions manage to get good students by and large, the answer lies in overabundance of high performers, at least in competitive examinations. Whether or not, in the process, one chose the highest quality individuals, those which have the highest chance of being truly creative, innovative and outstanding performers - we will never know. *(If one considers how few truly, internationally outstanding persons our education system has produced in relation to the abundant supply of bright, hardworking persons, and compare the percentage, on the same criteria, with the performance of higher education systems of some other countries, one would wonder whether*

we fail to select real quality at the time of admission or, having selected quality persons, we somehow manage, during the educational process, to stamp out creativity. Both are educational issues - of educational process and educational outcomes, different from those of instruction in the domain area of knowledge - that good institutions must reflect upon.)

Quality being a key concern in admitting students, institutions should be prepared to admit fewer than the sanctioned intake if enough quality candidates are not available. For private institutions this may be a difficult decision to take since revenues depend on intake but the 'message value' of admitting only quality students is most valuable in the institution being taken seriously by future aspirants, as also potential employers of institution's products.

Physical Infrastructure

A good infrastructure is an asset that good institutions strive for and build quickly. This is also the first thing that gets noticed when one walks into an institution and creates the initial impression about the quality of the institution. A good infrastructure of well appointed classrooms, a good library, extensive computing facilities, well equipped laboratories, hostel and residential facilities for students, faculty and staff, sports and other recreational facilities, needless to say, is important to promoting and supporting good educational processes. It is also conducive to creating a general sense of satisfaction about the quality of living in the institution.

This physical infrastructure, however, must function effectively. It is

not unusual to find once-excellent buildings that are not maintained and a pervading sense of neglect and lack of care. This can be most damaging, not just to the external image of the institution, but more importantly perhaps to the self-image and the culture of excellence that the institution would like to build. *You can hardly trust a quality inspector's judgement whose own drawing room has cob-webs.* Without naming it, I would recall my visit to a national level institution, not short of resources, where hostel rooms had not been cleaned for months, long cob-webs hung from the ceiling, pigs were roaming about the kitchen area which was filthy from accumulated refuse, and the students had to wade through stagnant effluents to reach toilets. No body cared, not even the students. When asked why they had not at least cleaned the cob-webs in their room, they had only a sheepish grin to offer. Would you trust such an institution to deliver academic quality? Culture cannot be compartmentalized. The lack of concern with maintenance and quality of infrastructure carries over into academics as well.

Good institutions are particular about the quality of their infrastructure. Russy Lala, former Director of Sir Dorabji Tata Trust, in a personal conversation with the author, recalled how Dr Homi Bhabha, who established the prestigious Tata Institute of Fundamental Research would go around the TIFR every morning, with Estate Manager in tow, inspecting....He would say very little but notice if anything was out of the place, a scrap of paper lying somewhere, or a painting which was not quite straight, ...The Estate Manager knew he had to get them

right before the day was over. "What put it (TIFR) in a class by itself was his close personal attention to every detail, be it the buildings, the gardens, the art collection, or, most important, the scientific programmes and its high standards.." (Russy Lala in 'The Heartbeat of a Trust').

A dimension of the maintenance issue is building infrastructure appropriate to the requirements of use. Just because money is available, if infrastructure is built much beyond the scale of use, one could end up with the situation where some class rooms are not opened for months, library has a huge building but little stock in active use, sprawling lawns where wild growth has taken over, etc. The campus gives the appearance of a forgotten 'ghost town'! A 'right sized' infrastructure can be managed better and also provide quality service. Further, one would avoid locking in expensive resources, financial as well as personnel, just to keep the unnecessary infrastructure going, that could have been utilized more profitably elsewhere.

Having said this, it is also important to keep the long term perspective in view, particularly in terms of acquiring land. Institutions grow over time and the lack of adequate land can become a real limiting factor in future. When Delhi Institute of Technology was to be set up, the then Member, Planning Commission, Mr T N Seshan, initially refused to approve Delhi Government's plan to acquire a large piece of land, until it was pointed out that the Institute was being planned not just for the present needs. It would grow and diversify greatly over future decades but then requisite land would simply not be available. Indeed, when IIT, Delhi, was set up, many felt that it had

too much land. Already, I understand, IIT, Delhi finds the need for more land and has been thinking of a second campus elsewhere since the present campus would not accommodate all its growth requirements.

Financial Resources

In the initial stages when the institution is being set up all resources must come from the promoter. The resources must be adequate to build a quality infrastructure, to hire and pay good faculty and staff, and to meet operational expenses for the initial phase. Later, the institute may be able to generate some funds through tuition fees and other academic activity but the task of institutional building is a long one and requires pumping in resources for considerable time. Promoters who do not have either the will, or the staying capacity would do well to stay away, unless they are looking for setting up a mediocre institute. Many private promoters take the view that they need invest only for a short time to build the very basic elements; thereafter further development can be financed by fee revenue. This is a risky proposition and not conducive to planning and establishing a truly good institution. Corners are constantly cut, that undermine quality. Also, when day to day survival drives the thinking it is difficult to institute practices and systems that engender quality. Despite the grandiose wish of the promoter to set up a quality institution, the culture of mediocrity seeps in, from which it would be difficult, if not well nigh impossible, to liberate the institution in future.

The problem is compounded if the promoters start withdrawing a part of

the institutional revenue as expected 'returns from investment', or for financing another institution building venture. Developing good institutions does not easily fit into a standard business model, where the business is expected to provide financial returns after a certain period of investment. Good institutions do provide returns but these are not necessarily financial in nature; they are valuable nevertheless. Promoters who seek these other returns are likely to be more comfortable with longish periods of investment in developing a quality institution. Fortunately, 'longish' does not imply 'for ever'. Once the institution acquires the reputation of a good institution, it starts attracting outside resources to finance its further growth. The promoter has only to take the institution to this 'take-off' stage. Beyond it further investment is largely an option, perhaps to spur development in certain specific directions in which the promoter may be especially interested.

Beyond the 'take off', it is a good strategy to demand that the institution starts to generate independent resources, at least a substantial part of its operational requirements. This keeps the institution on its toes, prevents complacency and acts as a stimulant to constantly improve the value it delivers to the clients. However, one needs to guard against resource generation becoming all-too-consuming and diverting the institution from its larger purpose. Tushar Shah makes an important point when he says "these then begin to suffer from projectitis, a common condition found in knowledge-institutions when their professional staff end up devoting the bulk of their energies running projects that earn their keep, and have little left

to pursue issues they consider interesting and significant..... Several knowledge-institutions of excellence have learnt to rein in projectitis and do creative and influential work while generating the resources they need to survive and operate, often in style." Shah advocates a moderate degree of tension about resource generation but argues against excessive tension as that, he feels, often causes goal displacement and prevents institution from achieving its full potential.

One other point needs to be made lest it be surmised that resource generation can be a viable option for all types of institutions and all types of activities. Certain fields of study do not lend easily to generating significant revenues from fee collections. Certain areas of research, consultancy and training, similarly do not get good funding support. Does it mean that institute's activities should move away from those areas or activities? If resource generation were the only criterion this may happen, but many of these fields/activities have strategic importance of their own and have significance for healthy and integrated development of activities in the areas that are financially more attractive. Ignoring them would therefore not be advisable. The institution should develop an internal system of cross-financing such activity areas.

Public agencies too have a responsibility to finance such areas and make up for market failures. It is too short sighted a view to leave development of areas purely to market forces. In this context, a particular mention must be made of financing of research. Private funding for extra-mural research is virtually non-existent and public funding too is most

inadequate. Public agencies and Not-for-profit Foundations must considerably enlarge their support for research in educational institutions, irrespective of whether they are government owned or private.

The Identity Dimension

To paraphrase Ikujiro Nonaka, a celebrated thinker on Knowledge Management, Institution is not a machine but a living organism. Much like an individual, it can have a collective sense of identity and fundamental purpose. This is the organizational equivalent of self-knowledge - a shared understanding of what the institution stands for, where it is going, and what kind of world it wants to live in.

Building an institution, at a fundamental level, is developing an identity, that at once distinguishes it from other institutions and also permeates all who comprise the institution. There is a collective sense of 'who we are', and 'what makes us who we are'. The institute asks itself, 'what goals, values and practices define us?', 'what is our purpose as an institution - why do we exist?', and 'what dream are we pursuing?'. The institute reflects deeply on its identity and purpose. The 'self-knowledge' so gained helps it to decide what it wishes to become. This pursuit of '*atma gnan*' is no different from what individuals are exhorted to undertake as they aspire to become better human beings.

An institution wishing to develop itself into a good institution must undertake such reflection, deeply and purposefully, and then carry through with its implications in designing institutional strategies and activities.

Furthermore, good institutions take themselves seriously. Having decided what they are and why, they have a clear sense of mission and pursue the mission seriously. They are not buffeted and deflected by every new fad or slogan. Institutions, not unlike people, go through lean and adverse circumstances when their core belief is tested. Good institutions withstand the pressures and come through. I am not advocating rigidity and inflexibility or that it should not adapt to changes. A good institution carefully evaluates the changes in its environment and chooses where to adapt, but without giving up on its core mission. The decision may not be easy, but as pointed out above, good institutions take themselves seriously and draw upon their commitment to core vision and values in taking the decision. One has only to look at the institutions that are admired and respected to realize the validity of this statement.

While management literature is replete with references to how important it is for organizations to define their Vision, Mission, and Objectives, and many educational organizations also undertake such exercises, it is seldom that these exercises go beyond mere formality. Beautiful statements are developed that adorn 'perspective Plan' documents, but then business-as-usual takes over.

Often, such exercises are confined to a select group from the institution - perhaps the promoter, institutional head and a few key functionaries. This does not deliver the desired results. Unless there is participation from all levels in the organization, from top management to the lowest functionary, in developing the institution's vision

and mission and understanding their implication, implementation would not only be superficial it could well be resisted or sabotaged from within. Building a shared understanding is certainly not easy, but it is vital and, that is where a good institutional leader is important.

The Cultural Dimension

I would like to deal with this dimension in two parts: the academic culture and the administrative culture of the institution. The division is purely for the sake of convenience, for, it is undeniable that one shapes the other. The term culture is used in the sense 'the way things are done'.

Academic Culture

Several issues define academic culture of an institute. These are:

Educational philosophy

An important defining element of the academic culture of an institution is its 'educational philosophy'. It sets out the broader educational purpose behind its academic endeavours and the approach to achieving it.

One institute may pursue an 'educational philosophy' that lays stress on the student acquiring a comprehensive knowledge base and skills related to the domain area, the objective being that the student who goes out of the institute is familiar with basic concepts, theories, practice and current issues related to his professional area and has acquired enough technical skill to deal with operational requirements of his profession. In short, the focus is on producing an aware, competent person who can successfully

negotiate the domain of professional practice. This is certainly not an unworthy objective. Indeed, many institutions would be quite happy to pursue this educational philosophy and would also receive appreciation by the users of their product.

Another institution may adopt a somewhat different educational philosophy and decide that building awareness and technical skills is not enough and wish to focus relatively more on developing creativity, originality, and a critical faculty that equips them with the capacity to question received wisdom and existing paradigms of thought and practice. There need be no sharp dichotomy between the two educational philosophies but, it is easy to see that the difference in relative thrust on different educational components and educational approaches in the two cases would be quite considerable.

A good institution will have a clearly articulated educational philosophy that is shared across the institute, and the faculty will have reflected upon and agreed on the approaches and measures by which the philosophy will be realized. It is a sad reality that many institutions have no educational philosophy at the institute level. Often, it gets set by default - not consciously, but by actual practice, or, by individual preferences of members of faculty.

For me personally, a good institution would have an educational philosophy that, apart from imparting domain-knowledge and related skills to students, emphasizes:

- building higher-order, generic, transferable, cognitive skills of : analysis, synthesis,

conceptualization, strategic thinking, communication, problem-solving, and creativity;

- building behavioural skills of co-operation, collaboration, team-working and creating healthy interpersonal relationships;
- developing a broader personality rather than merely competence in the chosen area;
- imbibing good professional values as also positive 'human values';
- creating an understanding of the societal context and sensitivity for social issues of development;
- developing capability for autonomous learning;
- pedagogical/androgogical approaches that focus more on learning rather than instruction; and
- originality of thinking and critically examining prevailing concepts rather than mere conformance to existing notions and approaches.

This is not meant to be a comprehensive list. The purpose is only to indicate the kind of issues that, in my view, make for a robust and desirable educational philosophy. The implications of this philosophy for educational approaches can be quite far reaching. For one, the approach would be student-centred, not teacher-centred as in many existing institutions. For another, curriculum framework will be designed very differently. Faculty would reflect on the educational process as much as it

does today on the content. Evaluation would be viewed differently; not as a 'summative' instrument but as a 'formative' one that provides valuable insights into the effectiveness of the teaching/learning process and, thereafter engenders new approaches.

Research

Another important element of the academic culture is the emphasis institution lays on research. Research is not merely an academic activity, one among others. It is an important educational strategy. For this reason, good institutions emphasise and support research.

At present only a small proportion of institutions of technical education engage in research. Teaching is seen as the primary role, often the only role, of institutions. Research is viewed largely as an additional activity to be undertaken if time permits, if teachers are personally inclined and, as a means of attracting additional funds to the institution from national funding agencies. Research, in my view, can serve a much larger purpose. Research is a crucial activity for promoting all-round development of the institution and enhancing the quality of its academic processes. It stimulates a spirit of enquiry, keeps the faculty up-to-date with developments in their field of expertise, helps in continuous modernisation of the curriculum, stimulates modernisation of teaching and research laboratories, promotes addition of new laboratories in emerging fields and, most of all, conveys to the students - future leaders of development - an important message of research being a problem solving strategy. Research is thus a

crucial educational strategy and should be promoted for this reason alone, if not for others.

The implication of this view of research 'as an educational strategy' is that (i) research must be established, over time, across the entire institution and not remained confined to only a few members of the faculty, (ii) funding research activity should not be seen as an 'add-on', but as an integral component of strategies aimed at improving quality of the educational effort, and (iii) funding of research must be an internal responsibility of the institution and not left entirely to possible/occasional support from external funding agencies which would naturally use their own criteria in choosing institutions and subject areas which are not necessarily educational. I realize that the institution may not be able to provide all the resources needed for research on its own but the institution should formally set aside a certain amount of funds in its annual budget for supporting a core level of research activity. Indeed, some of the well known institutions follow a practice of allocating a certain guaranteed amount for research to each member of its faculty. This amount is separate from any money that the person may be able to raise from external agencies. The purpose is to ensure that each member has some 'seed' money for research. This is often a selling point in attracting good faculty to the institute.

Research should also be viewed more widely in this context. There is a whole typology of research. Experimental or theoretical research in understanding physical phenomena, or applied research for converting this

understanding into useful products and processes - the usual type of research undertaken in institutions of technical education - does not scan the whole typology of research. There is a whole variety largely left untouched which can also be taken up. Often this is much cheaper to institute and helps create a more diverse and vibrant research environment. Research into the systemic issues of technical education, very rare at present, would be an example. Research into pedagogical/androgogical issues of instituting autonomous learning, for example, could pave the way for a major reform of the technical education system. Research into distance education methodologies could change/enrich the delivery patterns. Further, greater use can be made of 'ethnographic research methodologies', where the researcher is not a distant observer who stands outside the system to study it but an active participant of the very system that he/she chooses to study 'from the inside'. This research methodology is particularly useful for researching into systems - like the technical education system - which have interface with human systems. Institutions of technical education, therefore, need to develop an understanding of the whole spectrum of research methodologies, and adopt them in pursuing a broader agenda of research.

In building a good institution this perspective of utilizing research as a key educational strategy should be internalized. If one scans the environment for good institutions, whether within the country or outside, only institutions with vibrant research activity come to the fore. Equally, when one is looking for eminent faculty, it is persons with high research credentials

who get identified. In higher education institutions, research, is often viewed as a key indicator of how good the institution really is.

It is also important to recognize that sizeable research activity can seldom be sustained on the basis of individual members of faculty working alone. Research activity organized around specialized groups is usually more effective in taking up research problems of larger scope and sustaining the thrust over a longer period of time - which eventually helps to bring greater recognition to the institute, and to the groups themselves as 'centres of thrust' in that area of research.

The grouping can be a vertical one with some senior faculty supported by research associates and research students, or it can be horizontal where members of faculty in the same broad field, but with complementary experience, work together to explore different dimensions of the problem. Both kinds of groupings are important. The former requires the presence of other formations - research associates, research assistants and, research students working for a research degree. The institute should be prepared to invest in creating these formations. Availability of a PhD programme in the institute is important in this context as a source of a steady supply of research students.

The latter type of grouping - the horizontal grouping of equals - is generally more difficult to organize since it involves voluntary co-operation/collaboration among faculty members operating at the same level. Creating effective horizontal groups, however, is a challenge that good institutions successfully negotiate, not by mere exhortation but by establishing and empowering institutional mechanisms for peer consultation and group decision making. This is part of a robust academic

culture that an institution needs to develop.

Collegiate culture

A culture where academic decisions are taken collectively by the faculty through a process of free discussion and debate, where academic processes are subjected to scrutiny by peers, and where academic disagreements are not seen as personal challenges or insubordination to formal authority structures but as genuine search for the optimum approach in the face of competing concerns, constitutes, at least for me, a true collegiate culture. A good institution strives to build and maintain a robust collegiate culture.

Sometimes the collegiate processes may appear to be excessively time consuming, dilatory, or even obstructive of new initiatives and approaches, but the answer lies not in suppressing the culture and substituting it by authoritative mode of decision making. The value of the collegiate culture lies in the collective commitment and ownership of the ideas and approaches, which is crucial for developing and maintaining institute's educational philosophy. This gain far outweighs any negatives that may be associated with the implementation of the collegiate process. It is also my experience that decision making through this process is not particularly difficult, if the leadership is perceived as sensitive, sincere and flexible. Most academics are satisfied if their particular viewpoint has been discussed and understood even if it cannot be accommodated. Academics, perhaps more than others, are accustomed to recognizing that issues have multiple dimensions and

allow multiple solutions, and accept differences in opinions as part of the normal academic process. Having aired their viewpoint and listened to others they are usually prepared to converge to a decision.

Intellectual freedom to experiment & innovate

Good institutions place a great deal of emphasis on stimulating creativity among its faculty and leverage it for institutional growth. Highly creative people, however, tend to be different in the ways they relate to their work. They need a great deal of intellectual freedom to set their own work agenda and the manner in which they go about realizing it. It would be pertinent to recall the example of vibrant research culture at General Electric under William Coolidge: "*there was the greatest amount of freedom - and encouragement - to go ahead and do your thing and do it in some radically different ways.*"

Intellectual freedom is greatly prized by high level academics; indeed they are attracted to join institutions that in their perception provide a high degree of intellectual freedom. Good institutions recognize it and give them enough space and freedom to be creative and innovative. Academics may use it to develop new and unconventional lines of research, or experiment with new educational programmes that explore emerging areas of knowledge, or try out new, non-traditional pedagogical approaches, or indeed challenge existing paradigms of thought and practice. Many of these initiatives may not turn out to be particularly useful or successful. That really does not matter; what matters is that the

institution allows its academics the freedom to experiment and innovate, and is willing to accept the risk of failure inherent in any such endeavour. Good institutions have the maturity and foresight to realize that occasional successes compensate more than enough for their investment in experimentation. This happens through enlargement of the spectrum of their educational offerings (and thereby the potential of earning greater revenue), greater visibility, respect and recognition for the institute, and the institute acquiring intellectual leadership. Indeed, good institutions are known for innovating new products, patterns and practices - that other institutions then emulate.

Intellectual freedom does not imply that faculty would not be required to fulfil its normal institutional obligations of teaching, training, evaluation, academic administration, sponsored research and consultancy; or that it would be free to disregard institute's larger educational philosophy and create a sort of 'academic chaos'. It only means that there will be enough space and encouragement to be innovative and entrepreneurial, but then the ideas so generated would be subjected to the collegiate process of decision making. There is always some danger that the collegiate process may reject the truly unconventional idea and thereby limit the intellectual freedom of some member, but a visionary institutional leader would often have the capability to sense and separate the promising idea from merely unconventional, and know when to intervene to preserve the 'intellectual space'. He would also have

the charisma and moral authority to negotiate it successfully through the collegiate process.

Recognizing and Respecting Peers

An important element of a good academic culture is the willingness to recognize and respect the peers for their genuine academic achievements, experience and excellence. Envy and jealousy are not uncommon characteristics even among academics. Many institutions suffer from an unhealthy environment of pulling the colleagues down, underplaying or minimizing their achievements, or being unduly critical of their academic position on various issues. The freedom of criticism, an inherent part of academic culture, should not be abused to settle personal scores. It hardly needs emphasizing that this can have many harmful consequences for the institution as well as the faculty itself. Instead a good institution encourages the culture of recognizing and highlighting achievement of peers, and avoiding vituperative and destructive criticism. The institutional leader has to be particularly sensitive to this aspect and intervenes to develop and maintain healthy practices. This is vital also for building a robust culture of co-operation and collaboration within the institute. It is sad how often one comes across institutions where petty politics and groupism has so vitiated the internal environment that genuine collaboration is ruled out. Everyone, including the institute loses out as a result. A good institution, therefore, is careful to ensure that such a culture does not develop.

Administrative Culture

In building a good administrative culture it needs to be recognized that an educational institution is unlike other organizations. Some organizations by the nature of their role and responsibility need hierarchy and authority structures for effective functioning. Some others, again given their role and nature of responsibility, have to be procedure oriented and bureaucratic. Educational institutions on the other hand thrive in an environment of intellectual freedom, experimentation and creativity. Ideas, rather than authority or procedure, are the defining element of an academic institution and it is not difficult to see that authority or procedure orientation does not sit well with free flow of ideas. The value system of academics too is not compatible with hierarchy, authority or procedural rigidity. It should also be recognized that good academics are men and women of some achievement and distinction. They could just as easily have chosen other type of organizations which are characterized by status (derived from position in hierarchy), power and authority. In choosing academia they display a propensity and preference for the world of ideas, where status is derived from their performance in generating and unfolding new ideas, where the only power that attracts is the inherent power of an idea, and where procedures are not accepted simply as 'given' but constantly subjected to validation tests for their ability to deliver desired results in the academic sphere. It is not surprising therefore that academics tend to be impatient of hierarchical authority and routine administrative procedures. Shah observes that 'high performing knowledge institutions tend to eschew

hierarchical reporting relationships'. 'The organization discourages...hierarchies; and young and the old, junior and senior amongst the professional staff are able to function as equals. The organizational structure is designed to promote partnership rather than patriarchy.'

No organization can do without an organizational structure for general administration. Administrators are needed also because academics, by and large, display a general distaste for purely administrative functions. At the same time academics expect the institution to provide an efficient administrative framework for their own effective functioning. Thamhain in a study of engineers' attitudes toward management mentions that, among other priorities, they desire 'management assistance in solving administrative problems'. Good institutions, therefore, seek to provide a good and efficient administration. It is important, however, to ensure that:

- **administration does not 'take over' the institution.** Administrators, by virtue of their role, are in control positions, define and interpret rules, and have the authority to take a variety of decisions which impinge directly or indirectly on the functioning of the academics. They become powerful; not just senior administrators but support staff as well. Soon, as Shah points out, support staff proliferate and take over the institution, which then gets run as *institution of the staff, for the staff and by the staff.*' Good institutions, therefore have begun to farm out many of the services so that

professionals -who also perform the management roles - can spend most of their time and energies in professional pursuits.

- **administration sees itself in the role of supporting and facilitating the academics** in discharging their academic function. This implies that any procedural formalities would be kept to the bare minimum, and, that the academics would be assisted to fulfil them without spending too much time and energy. The test of a good administration of an educational institution is if academics see it as sensitive, sympathetic and one to whom they can turn to with confidence if they need any help. I would not need to point this out but for the fact that in many institutions the culture is very different. Administrators see themselves as the 'real core' and the academics and students as adjuncts who need to be regulated and controlled. Academics in such institutions view administration as part of an obstacle course that must be negotiated somehow, even by humouring low level functionaries and other authorities. They do not expect to receive sympathetic consideration; if their request can possibly be turned down, even on the flimsiest technicalities, it most certainly will be. To avoid such culture from developing, good institutions have started to put some of the major administrative functions under the overall supervision of the academics themselves. This

can help to mitigate the problem but the bureaucratic culture and procedure can often be so strong as to nullify the intended impact in practice.

- **administration is decentralized.** Decentralisation makes sense not just because it reduces the distance between point of action and point of decision and speeds up the process, it is important also as a strategy for engendering greater involvement, and sense of responsibility. Centralisation of decision making concentrates too much authority in few individuals who become all too powerful. Information flow is also impeded so that the basis of decision making is not known. Transparency suffers. Motives of decision-makers are suspected. Any dissatisfaction with the decisions and criticism accumulates at a single point which tends to discredit the central authority and greatly diminishes his moral authority and capability to lead. Others, who are not part of the centralized decision making structure, get alienated in the process. This, in turn, robs the institution of their dynamism and initiative. Decentralisation, however, need not mean that the leader is no longer able to exercise management control. It only shifts the nature of intervention - from micro-level management to more strategic control and broad monitoring of institution's locus of growth.
- **administration is non-threatening and non-**

confrontational. A confident, mature leadership seldom resorts to threatening. Threats, in the ultimate analysis, represent a tacit admission of failure - that more formative and positive approaches have failed. Threats are also dysfunctional because they engender hostility and opposition, even challenge and defiance. Once these attitudes emerge it is very difficult to get back to institutional harmony. An ironical aspect of power and authority is that one has them only as long as these remain implicit and un-exercised. The moment one has exercised them they are diminished; their limitations are revealed. The natural superiority of the powerful is eroded; the object of the exercise (on whom the punitive power has been exercised) and the subject are psychologically brought to the same level. A good administration achieves results, not by threats, but by motivating, enthusing, encouraging and supporting the employees. Instead of overt and external disciplining, good organizations encourage self-regulation based on self-discipline and peer pressure. Admittedly, this is not always possible. There will be stray cases that require external disciplining, where leadership will have to demonstrate that it means business. But in good functioning organizations such events will be truly rare. Administration has to resist the temptation to secure compliance by threats and

exercise of raw power. This, as pointed out earlier is dysfunctional in the long run.

- **administration promotes a culture of trust.** A common propensity of many administrations is distrust - the belief that given an opportunity people will be dishonest and misuse any benefits or provisions that the institution may allow. This prompts them to develop a maze of rules and requirements to plug any possible loop-hole, real or imagined. In the process, quite often the real purpose of the provisions gets defeated. The cost of administering such a system becomes high, bureaucracy flourishes, delays become common, and administration is viewed as difficult and insensitive. This perception is generally not unmerited. Having got accustomed to the culture of distrust and occasionally detecting misuse which further strengthens this belief, administrators become even more entrenched in this mind-set.

The cost of culture-of-distrust to the institution is simply too high. Apart from creating unhappiness and dysfunctionality all around, even the monetary cost of wading through the complex maze and administering provisions would merit consideration. I would recall my days as a PhD student at Cornell. All graduate students had their own key to enable access to the 'departmental

store' at any time of the day or night. The store had all kinds of consumable items, from simple printer-rolls to expensive components and sub-assemblies. No one supervised the store at night; one simply left a slip with name and account number if one took out something. Not accustomed to this display of trust, I once asked the manager who replied, "yes there is some pilferage but that is very small, and not worth the cost of putting a supervisor in place. Trusting people is cheaper".

- ***administration encourages and supports autonomy.*** An essential element of effective decentralization is that the decision makers at different levels of the decentralized structure have requisite functional autonomy. Mature and confident leadership promotes autonomy with a view to benefiting from the experience, creativity and initiative of a larger set of persons. Weak and insecure leadership on the other hand would seek to limit autonomy and retain authority close to its chest. It is so easy for an administration to subvert real autonomy by prescribing detailed, uniform procedures, or laying down too many boundaries, or monitoring procedural aspects too closely. Then the autonomy is merely nominal and the full benefit of autonomy generating (and utilizing) a rich spectrum of ideas and approaches will not be

realized. The propensity for demanding uniformity is often a result of administration's discomfort, and the inability to deal, with diversity. In any case, it is antithetical to generating innovative solutions. Accountability is mentioned, almost always, in the same breath as autonomy. I suspect that it is done partly to allay fears of unbridled autonomy - autonomy gone wild! No one will dispute the need for accountability, and it is certainly not my intention to do so, but, my personal preference is for 'accountability for outcomes' rather than 'accountability for procedures' - following pre-laid procedure meticulously, the more usual kind of accountability demanded in bureaucratic organizations.

The Leadership Dimension

I have deliberately left it to the end although it is possibly the most crucial dimension. In a sense, I have already hinted at the profile of a good institutional leader by describing the task - the nature of educational institution that he/she has to build. I will therefore be brief in defining the desired profile of a leader of an educational institution:

Visionary

A good leader would be, first and foremost, a visionary - one who brings with him a clear vision of what the institution could aspire to be, has the capability to articulate its broader purpose and, also the capacity to visualize the broad contours of the path it might take to get there. This vision

would be rooted not in some romantic dream or popular catch-phrases, but derived from a larger 'world view' of the 'purpose of education' at one hand and understanding of the prevailing educational scenario and its challenges, on the other.

Wide Experience and Exposure

The previous paragraph brings out the importance of this aspect. Institutional leaders without such breadth are likely to draw upon their narrow experience-base in defining the vision of the institution as also the strategies of realizing it - thereby limiting it at the very outset. There are exceptions, of course, of persons with little prior preparation for leading educational institutions, who turned out to be outstanding institution builders - Homi Bhabha, Vikram Sarabhai, or Ravi Mathai for example, but these are rare cases - of exceptionally gifted persons who had already acquired very wide exposure, had a highly evolved world-view, and were able to draw upon their varied experience and apply it to building good institutions. (Indeed something can be said for the exposure to include some experience beyond the education system as well.) Such exceptions apart, it helps to have a leader who has wide experience and exposure to educational institutions, who is sensitive to the special requirements of academics and educational organizations and who understands the context and dynamics of educational institutions.

Builder

One encounters three types of personalities among institutional leaders. First type is of those who are

status-quoists, who are content to preside over what already exists and maintain it by and large, or emulate what most other similarly placed institutions do. Typically these leaders have grown vertically in the same or similar institution and their world has corresponding limits.

The second category in this typology is of those who are critical of what exists, and find reasons to demolish it without any clear notions of what could replace it. Finding their rationale in such terms as 'consolidation first', 'small but efficient', 'manageable proportions', they end up diminishing the scope and size of the institution. These leaders have usually come to the institution from some small institution/formation where they served earlier and are unaccustomed to, even uncomfortable with, a larger scale of operation. They end up reducing the institution to their own level of comfort.

The third category is of persons who are instinctive builders. They are entrepreneurs, constantly seeking new opportunity for expanding the scope of institution's activities, enlarging its outreach and zone of influence, innovating and experimenting with new educational products/offerings, building strategic alliances with other institutions and potential clients and, most of all, adding intrinsic value for which they get known and emulated by others. For building a good institution, my own preference would be for this third category of leader.

Commitment to Institution Building as a Mission

Profile of a true institution builder transcends that of the entrepreneur

outlined above. For him/her building an institution is not merely an exercise in expansion, enlargement and diversification of an organization. It is an abiding commitment to build an 'institution' as against simply an educational organization. Implicit in this approach is the personal belief of the leader that he/she is engaged in a truly important mission. The leader would approach the task of institution building with a sense of creating history and leaving behind a rich legacy. This is not meant to indicate that the leader would have an inflated sense of his own importance; only that the task is not a temporal one, of transient importance, but one that must pass the test of time and endure. It would help the leader to make appropriate choices when confronted with the dilemma of balancing the priorities of the moment with those of the long term. The leader would be guided by the sense that the institution would outlive individuals and, therefore, its design must transcend the short-term and purely individual preferences. He protects the mission of the institution from any onslaughts as a true 'trustee'. Such a leader is also careful not to conceive the mission of the institution too narrowly that would not admit of growth or change in direction. Institutions are like organisms; in course of time they grow in directions and dimensions not entirely anticipated.

Optimistic, Enthusiastic, Dynamic, Full of Energy

These are essential attributes of an institution builder. Institution building is often a slow, tedious task. Many problems are encountered on the way which can sap the will to continue to fight. Enthusiasm can wane. This can

be disastrous, particularly since it demoralizes all down the line. Equally a leader who is optimistic and enthusiastic helps to maintain the will and direction of others. 'Contagiously optimistic' is how a good institution builder was described. Kelly's leadership at Bell Labs was described thus, "every place needs a fireball or spark plug, and he was it." The same can be said of a good leader of an educational institution.

Broad Shoulders

An effective institution builder, it has been pointed out, encourages experimentation and innovation, and is prepared to absorb any risk involved in the process. He has broad enough shoulders to protect colleagues from any genuine failure in their efforts at innovation. Sadly, not many leaders of institutions display this characteristic and are quite content to walk away from failure leaving the junior employee to take blame. But then such leaders are not institution builders, nor do they command loyalty of the subordinates. Good institution builders on the other hand shield their subordinates in such cases and take the responsibility of failure upon themselves.

Open-Minded

Despite all his superior experience, exposure, and evolved world-view a good institutional leader must remain open-minded. Leaders who 'know everything' having 'done it earlier' only succeed in shutting out their colleagues and benefiting from fresh thinking. They become prisoners of their own previous experience and keep reinventing future in the image of the past. Anyone who has listened carefully to others, even less

experienced, has undoubtedly been surprised often-times by fresh ideas and insights that are offered. Even if the idea is not directly usable, it can trigger a fresh train of thought when tested against one's own previous experience. A good leader listens with an open mind and is willing to give the idea a fair trial without letting his own experience from prejudicing it.

Believes in True Consultation

A corollary of the above is the leader's belief in consulting his colleagues and other stakeholders as a genuine process for evolving shared understanding and taking decisions. The benefits of this approach are far reaching in creating a conducive climate for implementation. The price of not doing is losing involvement and commitment of colleagues and engendering discontent and resentment. A good institution therefore gives considerable emphasis to creating robust consultative mechanisms. These institutional mechanisms are then seriously taken, their regularity and sanctity is maintained and, meticulous records are kept that provide guidance and points of reference in future.

Consultation, however, must be genuine. The leader should be prepared to spend the necessary time and effort in arriving at shared perceptions and decisions. Nothing kills consultation as effectively and surely as an attempt by the leader to convert it into a forum for forcing his view or simply informing decisions already taken.

Genuinely Sympathetic and Helpful

Institutions, in the final analysis,

are the people in it. A good leader is genuinely sympathetic and helpful; mere façade or mask is soon seen for what it is. Employees do not always expect that all their problems would be resolved; the system may not permit certain things. But if the leader is perceived as genuinely sympathetic, employees will accept even when he cannot be helped. Acts of sympathy and kindness are long remembered, and help generate loyalty to the institute.

Fair

An institutional leader must be and also perceived to be as fair and impartial. Employees will accept even un-pleasant decisions if the fairness of the institutional head is not in doubt. Nothing is resented more than if certain persons are seen as favourites, who receive special consideration or benefits denied to others.

Not Surrounded By a Coterie

Leaders tend to accumulate around them persons who are found to be helpful, efficient and generally useful. Not unnaturally, leaders return to them when something else has to be done. Soon a coterie is formed, which wield undue influence; some members may even use this to enhance their own position vis-à-vis others. This is greatly resented and becomes dysfunctional in the end as the leader is insulated from others and loses the potential benefit of their involvement and initiative. A good leader is very careful to avoid the formation of a coterie.

Non-Threatening, Polite

This point has been discussed in an earlier section. A good leader

remains polite in his dealings and does not need to be threatening.

Capacity to Command Respect from Academicians

Educational institutions do not easily give respect merely because a person is in a position of authority. Academicians need to respect the leader if they are to extend genuine collaboration and accept his leadership willingly. High educational credentials are therefore important in choosing a leader of an educational institution. These help to create initial acceptance of the leader. Thereafter, it is his demonstrated skill in negotiating academic and administrative domains that helps. An institutional leader who is not respected academically virtually has no moral authority over his faculty.

Strategic in Approach

A good institutional leader is strategic in his approach to the task of managing and building the institution and avoids getting sucked in micro-management. He delegates instead what can be delegated and reserves for himself more strategic issues. Sometimes an insecure leader would want to manage every little issue. This is not only very difficult and inefficient; he also ends up losing sight of the forest for the trees.

Willing to Give Credit Where it is Due

It is not entirely uncommon to see institutional leaders trying to usurp credit, or cornering all the glory, for institutional achievements, in the belief that as institutional leader they have made it possible. This can be most de-motivating for those who contributed

to them. A good leader not only recognizes and projects the achievements of his colleagues he can also afford to be generous. In any case, the leader gains stature if his colleagues are recognized and appreciated for their achievements. Another side of the same coin is that a good leader resists the temptation to belittle his colleagues, or past leader, or accomplishments of his predecessor in order to project himself in better light. This is not only pathetic, it diminishes him.

Transcends Narrow Self-Interest

A leader who eschews narrow self-interest and is perceived as self-less and sincere has much greater chance of succeeding. Collaboration, cooperation, and support, flow naturally to such a leader. Considering that no leader achieves anything important for the institution entirely by himself such support is vital.

In Conclusion

There are clearly many more dimensions to building a good institution. I have highlighted only a few which reflect my personal persuasion and experience. I am also conscious of the fact that some ideas may seem to be unrealistic to some who may consider them too 'goody goody', unsuited to the 'harsh reality out there'. To them all that I can say is that they worked at least for me, and if they did not work sufficiently at times, I view that more as my failure to measure up to the requirement than the failure of the idea itself.

I also wish to say that many of the points may appear to be 'common sense'. That may be so but one has

only to reflect on how uncommonly 'common sense' is actually deployed in practice to see why they need bringing out. There are no startling revelations, no magic, no secret recipes to building good institutions. If there is any magic at all it is in actual application!

References

1. Betz, F. (1987), "Managing Technology; Competing through New Ventures, Innovation, and Corporate Research", Prentice-Hall, USA.
2. Lala, R.M. (1984), "The Heartbeat of a Trust", Tata Mc Graw Hill, Mumbai, India.
3. Lorange, P. (2003), "Leadership Challenges in leading business schools" in De Corte (Ed.), "Excellence in Higher Education", The Portland Press, London, UK.
4. Sen, A. (1999), "Development as Freedom", Oxford University Press, New Delhi, India.
5. Shah, T. (2000), "Building and Managing Knowledge Institutions: Lessons of India's Experience", in Reddy, K. P.; Singh, K. (Eds.), "Designing and Managing Rural Development Organisations", Oxford & IBH, New Delhi, India.

