

Economic Impacts and Success of Technical Education In Japan A Lesson for Pakistan

Dr. Noor Ahmed¹ & Bijjar Khan²

Abstract

This paper investigates how Japan may have accomplished this reliable standing and does Pakistan may have the capacity to gain from the Japanese experience. The Japanese educational structure is grounded in a profound commitment regarding youngsters that is concrete and persevering. This paper additionally ascribes Japan's achievement to a top notch skill training, fantastic family bolster for Japanese students at home, the way sources are centered on policy and the solid motivations the system accommodates students to take hard courses and concentrate hard in school. Japanese educators have a noteworthy level of self-sufficiency in its application. The whole approach is helped by the common conviction that exertion and not capacity is the thing that mainly elucidates student accomplishment. These, and numerous different mechanisms, have joined to deliver one of the world's best educated as well as most valuable personnel. Then again, major challenge that Pakistan is confronting is the lack of technical education. This paper stresses emphatically to concentrate on providing professional and technical education in Pakistan. A lesson must be learnt from Japan's huge educational policies because skill development as well as technical training is key element to help a nation's economy and economic growth.

Introduction

Why the Pakistani public education system functions so poorly relative to other institutions of Pakistani society? Pakistan has undeniably made economic progress; the GNP per capita has averaged a steady rise of 5-6 percent yearly for the last twenty years. This may not compare well against growth rates in Korea or Taiwan. But it does put Pakistan well above many third world countries. People with experience in development work are fairly impressed with the country's economic indicators. But in the same breath they say that they have never seen an educational system as appallingly bad as Pakistan's.

¹ Assistant Professor, Pakistan Study Center, University of Balochistan.

² Senior Research officer, Pakistan Study Center, University of Balochistan

To put it bluntly: education is not perceived as a vital, central, need of Pakistani society. Underlying any real improvement in education requires that society accept, at least in principle, that education is a vehicle for change and progress rather than a means of simply preserving tradition and culture. A rational restructuring of educational priorities focusing on the relation of education to employment will be needed as well.

The curriculum for all schools in Pakistan is not uniform. The curricula devised by its “experts” often have the wrong emphases, contain outdated concepts, and do not provide for a relevant and useful education. Textbooks are badly written that have frequent conceptual, pedagogical, and printing mistakes.

Pakistani education is strongly examination driven; exams provide the incentive to study. But with cheating in examinations, and continuing emphasis on rote memorization, the examination system has become corrupt and dysfunctional. The results of examinations today are poor indicators of student performance and learning.

As a very rough guess, there are probably no more than a few hundred science teachers in all Pakistani schools combined who understand what they teach, and can be therefore considered proper teachers.

In 1947, Pakistan had only one university (Punjab University). Fifty years later, in 1997, it had 24. While lamenting the obviously poor quality of Pakistani universities, officialdom invariably chooses to focus on the small number of research papers published or the small number of PhDs produced the paucity of equipment and facilities, and frequent incidences of violence. But the problem is considerably more serious because public sector universities in Pakistan are characterized by extreme poverty of scholarship, intellectual timidity, irrelevance to societal needs, and frequent physical violence. For three decades Pakistani education planners had claimed to recognize the need for reform and had announced grandiose plans that came to naught.

There are ways to ameliorate the worst aspects of the present system and step by step reforms that can make things better. For schools, in addition to improving the infrastructure where needed, reform must be directed towards the curriculum, examinations, textbooks, teacher training, and school administration.

It is time to start living in the present rather inflicting upon students a medieval concept of knowledge, values, and behavior. Pakistan’s future will be bright only if institutions are to be built that produce students who are informed, critical, and active citizens of the modern world.
(Pervez Hoodbhoy)

Technical Education in Japan

The performance of Japan's students in schooling as compared to other nations is amazing. There is nothing surprising about this reliably great achievement; Japan has set at or close to the highest point of the global rankings on all such reviews since they started. Some researchers say that standard Japanese secondary school students who enter universities compare positively and standard American school students as far as what they know and what they can do. Less liberal eyewitnesses recommend that they contrast positively with American students with two years of school. Other researchers take note of that numerous Japanese secondary school students know more regarding Geography as well as history of other nations than citizens of those nations.

Daily paper articles in Japan routinely expect that their consumers can comprehend modern factual tables and exceedingly technical subjects. Manufacturing plant directors allot manuals that expect learning of analytics to groups that incorporate late secondary school students. The benefit of this level of information and aptitude to a nation, in both citizenship and financial expressions, is inestimable. The inquiry in this paper is: how could they do it? Furthermore, the result to that inquiry is: What can different nations gain from Japan that may surpass any social contrasts?

The Japanese Educational Policies in History and Social Context

Japan is an island country. The extent of arable land to populace is among the most minimal in the industrialized world. Its people crowded together in the mountain valleys and along the coasts in thickly populated enclaves. Japan is likewise subject to frequent successive fiascos, for example, hurricanes and quakes, and the general plausibility of production loss. Also, eventually, these islands contain almost nothing in the method for readily extractable natural assets. Rather, they have accomplished such an amazing state of progress by their educational structure. A long history in such a testing situation has profoundly affected Japanese culture; individuals achieved exceptionally solid collaborative ties as a combined survival component. Society observed at an early stage that a lack of natural assets implied that the most ideal approach to succeed was through creating human capital. The outcome is a culture in which incredible esteem is set on skill and training from one viewpoint, and on the group and social relations on the other. In Japan there is a common opinion that if the individual works resolutely for the people, the people will respond. In any case, on the off chance that one scorns the people; one can expect nothing from society. We take a look at how historical components have molded Japan's educational system.

The Second World War to the present day: A stress on quality and standards

After the Second World War, under American occupation, Japan made nine years of training obligatory, gave money related help to those understudies who required it, and made it workable for each secondary school graduate to take the school placement tests. Already, just a predetermined number of exceptional secondary school graduates had been permitted to take these examinations. These strategies strengthened the drive towards the exceedingly meritocratic framework that had just started.

As noted before, Japan's testing condition and living conditions may have molded the high esteems set by the Japanese on the welfare of the gathering over that of the individual and on amass agreement (White, 1988).

This feeling of being wrapped by the uncritical love of a gathering is called (Wa) an indispensably essential idea in Japanese society. Basic to satisfaction, wa is looked for at each phase of life: first with one's mom, at that point with whatever is left of one's family, companions at school and school, and partners and bosses at work.

In this condition, people pick up regard by doing things that the gathering esteems; if a man's activities undermine aggregate congruity, social authorizations take after with colossal repercussions. On the off chance that one loses the regard of one gathering, building up wa with different gatherings can be more troublesome. This social factor clarifies why the Japanese endeavor to keep up great relations with the gatherings to which they have a place. It likewise lies behind the great instructive execution in Japan.

In Japan a school's notoriety relies upon the scholastic execution of the understudies and on their conduct. Society considers the school in charge of the two perspectives in a way that has no parallel in the West. For instance, if an understudy abuses the law, the law requirement experts call that understudy's homeroom educator and also the mother and all employees apologize for the understudy's conduct. It is not astounding along these lines that Japanese understudies have a tendency to build up a solid feeling of commitment to the staff and endeavor to perform well scholastically and to remain inside the points of confinement of the law when not in school. Without a doubt, a similar thought applies to an understudy's relationship to alternate understudies at school. To come up short is to disappoint the gathering. Hence most individuals from this general public will work hard to do and additionally conceivable, and are continually working towards higher objectives, since that is the best approach to win acknowledgment and pick up status.

Similar esteems penetrate the working environment. It is regularly said that individuals work hard in Japan generally to procure the regard and adoration of their partners. They don't buckle down for individual refinement, but instead for the benefit of the gathering. Laborers don't "slack off" in Japan, in light of the fact that the manager is watching, as well as on the grounds that their companions or staff individuals from a lower rank are viewing. In the event that a worker gives his everything, the firm as with a family is required to give back. Japanese firms regularly give lodging, outings, training and even burial service costs to their representatives as a feature of a compensation bundle.

Not at all like numerous social orders where headway depends predominantly on associations and groups, is Japan all the more unflinchingly meritocratic as indicated by numerous eyewitnesses (Stevenson and Stigler, 1992; White, 1988). While youngsters from wealthier families are measurably more prone to land higher paying positions than less well-off kids, in Japan this is by all accounts because of more prominent monetary interest in a tyke's training and less because of social associations. Commonly, individuals work their whole grown-up life for a similar firm they joined after school or college, in spite of the fact that this is starting to change. A man's work in a specific firm is generally an element of the secondary school or college they went to before joining that firm; this is abnormal somewhere else. Thusly, the secondary school or college a man goes to is constructing totally in light of how an understudy does in placement tests.

A mother is judged on her accomplishment in supporting the training of her kids. By and by, a mother is judged first by the secondary school that her child or little girl gets into, and after that the college to which her tyke is conceded. In spite of the fact that the pattern is changing, couple of Japanese moms work outside the home as normally as moms in Western nations. Sociologists depict how Japanese moms are relied upon by society to make penances for their kids who, consequently, are required to perform well in school (White, 1988).

Hence headway in Japan is an element of legitimacy and controlled by examination. This should not to work, in light of the fact that there are numerous other critical aptitudes which are not measured by Japanese examinations. The exams underline remembering and collecting actualities and aching strategies, as opposed to expository considering, innovativeness or the limit with regards to development. In any case, it works since Japanese managers are chiefly inspired by three things: connected knowledge, the ability to learn, and the ability to buckle down and continue even with trouble.

Since Japanese firms by and large trust that they will utilize individuals for quite a while, there is a solid ability to put intensely in the proceeding with

instruction and preparing of workers. It is normal for a Japanese firm to send new college selects abroad amid their initial a very long time of work to seek after an outside graduate program or as an understudy in a remote plant. Inquire about demonstrates that Japanese firms esteem applicants who are not recently exceedingly canny, but rather prepared to realize whatever they have to learn.

Japanese businesses need to know not simply whether a competitor is savvy, but rather whether he can accomplish something with his insight. Managers are occupied with connected insight. Japanese exams are intended to discover what amount connected insight understudies can show and how much they can utilize their knowledge to accomplish something of significant worth. It is difficult to do well in Japanese exams without working hard, finished draw out stretches of time. This takes tact and determination. Numerous nations discuss the significance of "figuring out how to learn." Japan has done substantially more than discuss it; the nation has constructed a training framework around it.

In outline, from this authentic and social foundation, three focuses raise that assistance to outline the Japanese instruction setting: in this steadily meritocratic culture, the secondary school passage and college selection tests speak to entryways to status in Japanese society. The Japanese generally trust that how well one does in these exams depends considerably more on concentrate hard than on natural knowledge. Exam achievement does ponder the person, as well as on their mom, the other relatives and instructors. This heavenly body of help shares the duty regarding disappointment and makes strain to succeed.

In view of this foundation, the section will now look all the more carefully at the particular highlights of the Japanese instruction framework for more hints to the purposes for its remarkable execution.

The Salient Features of Japan's Educational Policies

A standard and motivating national syllabus

Ryo Watanabe, executive of universal research in the national establishment for training Policy explores, trusts that "Japanese understudies have done as such well on PISA in view of the educational modules. Japan has national educational programs benchmarks, or courses of concentrate that characterize the substance to be instructed by review and subject, and like clockwork they re-devise this educational programs. All through the nation, educators instruct in light of the national educational modules gauges."

In principle the educational programs is set by the Japanese service of training, culture, Sports, Science and innovation (MEXT) with guidance from the focal

board for instruction. As a general rule, the key figures associated with setting the educational modules are college educators and service staff. While the educational programs characterized by MEXT are just for "direction", the prefectures (a unit of government in the middle of the region and territory level) are additionally subsidized by MEXT thus by and large nearly take after the direction. The direction educational programs is long and nitty gritty, so MEXT likewise distributes informative booklets, subject by subject, by school level. The educational programs are overhauled following a standard timetable.

Training methods: A stress on student commitment

At first look, the Japanese way to deal with guideline abuses the most well-known sense standards. The classes are substantial by Western measures 35 to 45 understudies in a class and most direction is for the entire class. There is less instructional innovation than in numerous different nations and less instructional guides of different sorts. Understudies are not isolated into capacity gatherings; there are no unique classes for the talented, nor are understudies pushed ahead by a review or increasingly on the off chance that they are seen to be uncommonly capable. Essentially, understudies are not kept down on the off chance that they are experiencing issues. Numerous understudies requiring custom curriculum are likewise appointed to the heterogeneous general classrooms. The occupation of the instructor is to ensure that all understudies stay aware of the educational modules and they figure out how. Instructors meet every now and again with each other to talk about understudies who are experiencing issues and give as much individual regard for those understudies as they can inside the general school day. It is not bizarre for understudies who are not doing admirably in specific subjects to get additional guideline after school.

A portion of the most astounding understudy exhibitions on the planet rise up out of these classrooms. How would they do it? The essential objective of Japanese instructors is understudy engagement. Many individuals outside Japan envision Japanese schools as tranquil, serious spots where understudies unobtrusively duplicate down everything the instructor says. In any case, that is not the truth. Guests to Japanese grade schools report that the level of commotion is regularly well over that found in Western classrooms and the sound of giggling and extreme discussion fills the school. Understudies can regularly be heard energetically conversing with each other as they handle issues together. The guest strolls down the lobbies of these schools seeing understudies acting in plays, playing melodic instruments alone and in groups or working through a tea service. The more drew in the understudies and the more understudies who are locked in, the more joyful are Japanese instructors. One may think about how one educator could be able to draw in at least 35

understudies in a fiercely heterogeneous classroom when it is so difficult for instructors in numerous different parts of the world to connect with 25 understudies in more homogeneous classrooms. The appropriate response is a noteworthy key to the accomplishment of Japanese training.

School-Home Communication

Japanese understudies have a homeroom instructor and spend an hour a day in homeroom. The homeroom turns into that understudy's family in the school. Japanese homeroom educators at grade schools show all subjects aside from specific subjects like music and specialties. These homeroom instructors commonly complete their classes the evaluations for quite a while. They are required to consistently visit their understudies' families. Understudies regularly go to their instructors' homes on their educators' birthday events. In the upper evaluations, the instructors are required to give scholarly and profession and employment guiding. Instructors at primary schools keep up correspondence with guardians by methods for a scratch pad that understudies carry amongst school and home. Regardless of the possibility that an understudy has a non-scholastic issue, the instructor will impart the idea of the issue to the guardians, who are required to give fitting help at home. In the event that that is not adequate, the educator will encourage the guardians to counsel different administrations accessible at metropolitan workplaces.

This whole approach is supported by the conviction that exertion and not capacity is the thing that basically clarifies understudy accomplishment. In the event that an understudy falls behind, it is not on the grounds that he is bad at school work; it is on account of he is not buckling sufficiently down and the framework has an answer for change this. It is likewise helped by the possibility that many individuals, not only the understudy, are in charge of the poor execution of that understudy and poor execution understudy thinks about severely those individuals, as well. This rouses both parent and instructor to do everything conceivable to ensure the understudy gets back on track.

Lengthy training periods and additional teaching

Time is a vital factor in the great scholarly execution of Japanese understudies. Up to this point, Japanese kids went to government funded school six days seven days. Furthermore, Japanese school youngsters have a few hours of homework a day. They have a month and a half of getaway amid the mid-year, which is not as much as understudies in numerous different parts of the world. Understudies frequently do their own exploration amid excursions. The larger parts of Japanese understudies additionally invest extensive energy in different types of private guideline after the customary school day. these non-public schools extend from offering assistance to understudies who are behind to

make up for lost time, to offering further developed investigation than is accessible in the state funded school, to offering extracurricular exercises or coordinated or little gathering mentoring for some mix of these reasons. the consolidated impact of this extra investigation is that Japanese understudies have what might as well be called a few more years of tutoring when they complete secondary school than, say, the ordinary American understudy. What's more, as a result of the briefer summer excursion, they hold substantially more of what they have realized as they go into the following year.

Educator standard

Doubtlessly a standout amongst the most critical keys to the nature of training in Japan is the nature of its educators. In many industrialized nations, showing lies on the limit between proficient work and manual work. to turn into an instructor, understudies must go to a service ensured educator training program at a college or junior school. Japan likewise has some national instructor preparing colleges with show schools connected to help educator preparing for new instructors. Showing practice is a typical piece of all educator training programs.

Prefectures, as different managers in Japan, are set up to influence real interests in their new instructors to ensure them to have the important abilities to succeed. They expect that these new representatives come to them with the fundamental connected knowledge however not really the required employment abilities. In this way, like different businesses, they assume liability for giving an enlistment program that gives a maintained chance to understudy with experienced ace instructors previously being required to show full time. The acceptance time frame keeps going an entire year, and the ace instructors are given the year off from their instructing employments to manage their disciples. Once an educator is accepted into the normal showing work compel, the law expects instructors to take certain extra preparing (following 10 years of administration). Instructors can likewise apply for paid leave to take experts' degrees at graduate schools. The service likewise offers different preparing programs for prefectural mentors at its national Centre. The most intriguing part of instructor improvement happens at work. Notwithstanding the focal significance of the outline of the lesson in Japanese direction, "lesson examine" in the improvement of the Japanese showing calling is additionally critical.

Cautiously-targeted financial means

The Japanese spend less on their schools than various other nations, yet a clear sign of improvement comes about. Japanese schools are worked to service

plans – they are splendidly practical however plain. They are not building images of group pride and need a significant number of the exceptional highlights found in schools in other progressed mechanical nations. School organization is normally limited to a main, an aide central, one janitor and a medical attendant. There is no cafeteria understudies serve the suppers from a focal kitchen to their educator and schoolmates in the classroom. The understudies are additionally in charge of cleaning their classrooms. As noted above, course books are basically created in soft cover organize and are significantly littler than in numerous other industrialized nations. at each point, the Japanese have profited they spend on teaching their youngsters goes however much as could be expected on instructors and on direction, so it is nothing unexpected that a considerably more noteworthy extent of aggregate subsidizing is spent on these elements than is the situation in numerous different nations (Stevenson and Stigler, 1992).

An emphasis on impartiality

There is no tracking in Japanese schools, classes are heterogeneous and no understudy is kept down or advanced by virtue of capacity. Moreover, all are required to ace the same requesting educational modules. This is a capable recipe for value as far as results. What is especially amazing about this approach is that the normal results are not set at the most minimized shared variable, but rather at the highest point of the scope of conceivable results worldwide.

There is a generally shared confidence in Japan that these arrangements accomplish the best numbers and the outcomes bear this out. The framework is set up so high-accomplishing understudies can help bring down accomplishing understudies inside a gathering, inside a classroom and inside a school. The examination writing demonstrates that all understudies are helped by this approach, on the grounds that the understudies who educate and guide learn to such an extent or about as much during the time spent mentoring as the beneficiary of the coaching (cohen et al., 1982).

This approach is steady with Japanese esteems and contributes incredibly to the by and large abnormal state of Japanese accomplishment. Japanese instructors and principals are frequently reassigned to various schools by the prefectures. This is done, among different reasons, to ensure that the dispersion of the most able instructors among schools is reasonable and even-handed. as Robert angle commented amid his meeting, "educators and overseers are exchanged consistently at regular intervals so similar individuals are not in similar schools the greater part of the time there is a ton of levelling among schools."

All these and numerous different elements, including school support, make for a high level of value in Japanese instruction.

A different method to accountability and examinations

The Japanese have practically none of the trappings of formal Western responsibility frameworks and they needn't bother with them. Ryo Watanabe, counsellor to the service of instruction, Sports, Science and innovation, clarifies that until a couple of years back there were no national tests in Japan. At the point when Japan wound up plainly worried about the likelihood of being surpassed in instruction achievement by the Koreans and Chinese, they initiated a national trial of each understudy at the 6th grade and the ninth grade, yet they have since chosen to manage the test just to an example of understudies to screen the execution of the framework.

The main tests are the selection tests for secondary school and college. Everything relies on an understudy's execution in these tests. Since daily papers distribute comes about frequently everybody knows the rankings of these organizations and in addition the record of each necessary and center school in getting their understudies into the correct secondary schools and colleges. The daily papers are brimming with insights for each school, much like the measurements for prominent games groups in different parts of the world. Magazine articles are composed about changes in the rankings and what they mean and why they happened. Different stories are composed about understudies who prevailing despite seemingly insurmountable opposition in the exams and other people who did not.

Yet, that is just a large portion of the story. As pointed out before, in Japanese society the weight for the destiny of the understudy is carried to some degree by the family, the educators, the staff and even the understudies' cohorts. Educators' notorieties among their companions lay on the achievement of their understudies in a way that has no parallel in numerous Western nations.

The arrangement of homeroom instructors brings another level of responsibility. Since these educators finish the understudies the evaluations, and on the grounds that they are engaged with their understudies' lives outside of school and are in steady correspondence with the guardians, they are responsible to the guardians extraordinarily. This can't be copied in nations where instructors don't finish understudies the evaluations and where they are in charge of just a single or a couple of subjects.

Conclusion

Japan is plainly among the world's most progressive mechanical economies. It is among the world pioneers for the improvement and utilization of the most

progressive innovative frameworks. This was one of the objectives Japan set for itself. The individuals who propelled it understood from the beginning that those points would not be accomplished without a top notch, very comprehensive, forcefully meritocratic instruction framework.

Japan avoided the common moderate updating of educator quality, it likewise skirted the commonplace moderate movement from an arrangement of school association in view of the typical primitive requests straight to one that makes it feasible for understudies from each social class to access tip top instruction openings.

Japan was additionally in front of numerous different countries in grasping in any event a few parts of present day mechanical work association, particularly in how instructors work with each other in groups to enhance guideline, and in the expert standards overseeing crafted by educators.

Then again, Japan has been hesitant to regress expert to schools as forcefully as some different nations, and it additionally thought that it was harder to make schools that create autonomous, inventive understudies than different nations. This may mirror a conflict between the requests of an imaginative culture in which singular activity is profoundly esteemed, and the Japanese culture in which the endorsement of the gathering is ordinarily looked for before forcefully propelling one's own particular thoughts. Japan has discovered an unmistakable way which is harmonious with its esteems and comparable with the monetary and societal advance it wants to accomplish.

While there might be particular highlights of the Japanese framework that are unpalatable, it is a framework which bears cautious investigation. It has added to a nation with large amounts of school and scholastic accomplishment. Its understudies appreciate school more than most. It has created one of the world's best-instructed and most gainful workforces. It has outstandingly low wrongdoing rates and an exceptionally solid social request. It has high rates of resident support and a citizenry that has an uncommonly advanced handle of political issues. Guardians in Japan take part in their kids' training and join forces with instructors to a surprising degree. The nation has one of the world's most appreciated educational modules. In spite of the fact that the framework keeps on advancing, the strategies used to construct this framework ought to doubtlessly be considered by any nation that needs to coordinate its accomplishments.

References

- Arani, M. and T. Fukaya (2009), *learning beyond Boundaries: Japanese Teachers Learning to Reflect and Reflecting to Learn*.
- Auslin, M. (2009), "can Japan thrive or Survive?", *American Enterprise Institute for Public Policy Research (AEI)*, Vol. 1, no. 2, AEI, Washington, dc.
- Cohen, P.A., J.A. Kulik and C.L.C. Kulik (1982), "educational outcomes of tutoring: a meta-analysis of findings," *American Educational Research Journal*, Summer 1982, Vol. 19, no. 2, pp. 237-248.
- Crowell, T. (2010), "Japan's new Prime minister faces the Voters", *Asia Sentinel*, 6 July 2010.
- Dewey, J. (1902), *The Child and the Curriculum*, the University of Chicago Press, Chicago.
- Gartner, A. and D. Lipsky (1989), *The Yoke of Special Education: How to Break It*, monograph, national center on education and the economy, Rochester, New York.
- INSEAD (2010), *Global Innovation Index Report 2009-2010*, INSead Business School and the confederation of indian industry, INSead, fontainebleau, France.
- Ito, H. and J. Kurihara (2010), "a discourse on the new Kai'entai: a Scenario for a revitalized Japan", *Cambridge Gazette*, Politico-economic commentaries no. 3, 17 march, Cambridge, MA.
- Jansen, M. (2000), *The Making of Modern Japan*, Harvard university Press, Cambridge, MA.
- Kaneko, M. (1992), "higher education and employment in Japan: trends and issues", *RIHE International Publication Series no. 5*, research institute for higher education (rihe), Hiroshima.
- Kaneko, M. (1997), "efficiency and equity in Japanese higher education", *Higher Education*, no. 34, pp. 165-181.
- Lehmann, J. (2010), "corporate Japan is a little lost in communication", *Taipei Times* 17 April.
- Ministry of Education, Culture, Sports, Science and Technology (2002), *Educational Reform for the 21st Century*, White Paper, ministry of education, culture, Sports, Science and technology, Tokyo.

- Mizukoshi, T. (2007), Educational Reform in Japan: Retrospect and Prospect, Osaka university.
- Ministry of Economy, Trade and Industry (2010), The New Growth Strategy: Blueprint for Revitalizing Japan, METI cabinet decision, 18 June, 2010.
- MEXT (Ministry of Education, Culture, Sports, Science and Technology in Japan) (2005), Redesigning Compulsory Education: Summary of the Report of the Central Council for Education, national education Policy, MEXT, Tokyo.
- Monahan, A. (2010), “Japan data Show fragile economy”, Wall Street Journal, 9 July.
- Mullis, I.V.S., et al. (1998), Mathematics and Science Achievement in the Final Year of Secondary School: IEA’s Third International Mathematics and Science Study (TIMSS), TIMSS & PIRLS international Study center, Boston college, chestnut hill, MA.
- Mullis, I.V.S., et al. (2008), TIMSS 2007 International Mathematics Report: Findings from IEA’s Trends in International Mathematics and Science Study at the Fourth and Eighth Grades, Boston college, chestnut hill, MA.
- Pervez Hoodbhoy , “Education Reform In Pakistan, Challenges and Prospects. Pp. 5-30