

## **Redesigning Indian Examination System through Technology**

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### **Abstract**

Education has always been conceived as a tool to promote national development as well as international understanding. Education is a key factor determining a nation's progress. The quality of knowledge society depends on the quality of education. In the whole educational system, Evaluation plays an important role in the process of teaching and learning. Examination is an instrument to test what the student has learned and retained in his mind during course of study. Examination are integrated part of our educational system. With the technological revolution, the electric media is replaced by the digital media or ICT and virtually every aspect of human behaviour or activity is in some way or another dependent on the new computer technologies. It is a fact that, ICT has great potential for knowledge dissemination, effective learning and the development of more efficient education services. ICT has opened new avenues in education by way of increased accessibility of resources and better interaction processes. In the case of Examination system, all the universities and school education boards are under a process of change from manual to computer technologies / ICT. This change in the examination system will minimize human intervention by adopting ICT since the technology promises compact storage, speedy retrieval of data and untiring diligent work. Global reforms in education and challenging ICT demands have also made a remarkable shift in the structure of ICT environment and the utilization of ICT in education. ICT is having lot of possibilities in improving the whole examination system. Trend of seeking online applications for regular, entrance /competitive examinations and conducting on-line examinations have made the system very simple and cost effective for the examining bodies. But, on the other hand, this change is also bringing lot of challenges to the rural youth of the country who are not that much tech-savvy. The present paper, focus on the possibilities and challenges of integrating ICT in examination system. The paper also focuses on the problems related with the ICT based examination system adoption by the students.

### **Introduction**

Education has always been conceived as a tool to promote national development as well as international understanding. Education is a key factor determining a nation's progress. Education a process of creation, preservation, dissemination of knowledge, development of skills / attitudes and is an important element and basis of a knowledge society. The quality of knowledge society depends on the quality of education. The quality of life in depth cannot be achieved unless the human society is empowered with input of knowledge and progress of mind. One has to learn through education how to achieve fundamentals of self-realisation. It is a process of world building and it implies practicing and ensuring of the human stuff at various

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levels of socialization. The education system is the instrument a society uses to equip its entire people to lead productive public lives and full personal lives according to their talent and interest.

The quality of education that we impart to our youth and the priority at which we rate it contribute largely to the formation of the attitudes they carry over into public life. The great impact of education on the national character is understandable once we recognise both the short term as well as long term power education wields over all who go through its process. The formal education system adopts proper curriculum along with strong evaluation process. Evaluation helps us to understand whether we are going in the right direction or not. It is not only important for the people who are managing the educational system but also for the students who undergo through this process. Examinations are one of the tools adopted for evaluating the learner.

### **Relevance of Examinations**

Indian educational system gives lot of importance to the examinations. At every step of our educational process we depend upon the examinations. Examination is the pivotal point around which the whole system of education revolves and the success or failure on the parameter of examination is indeed an indicator of the success or failure of that particular system of education. Examination may be used as a means to organize and integrate knowledge, it encourages student to go through various books and integrate ideas to respond to a given problem. For a teacher too, examination gives a stimulus and goal orientation to his work. In a nutshell, we may say that examinations are inevitable, without examination the work of students and teachers will neither have precision and any direction. Examination is always an effective instrument to evaluate the quality and quantity of knowledge or say learning in a specific field (Mishra, 1988). The curriculum framers keep the examination as the ultimate aim while drawing up courses. The quality of the institution is judged on the basis of the examination results. The two basic assumptions of any examination worth the name are that it should be valid and it should be reliable. An examination is said to be valid if it performs the functions which it is designed to perform. The concept of reliability refers to consistency of measurement. In actual fact, the prevailing system of examination and its mode of conduct defy both these assumptions. The system has degenerated to an extent that its validity and reliability are questionable. Examination is no longer regarded as a test for evaluating the performance or judging the scholastic attainment of students. The reason being that there is a complete breakdown of the whole system of examination, almost all over the country, and at all level of education. The system of examination needs review and reformation. Ministry of Education's 'Report of the Secondary Education Commission of India (1952-53)' also criticized about the excess weightage given to the examination and mentioned in its report, "*The educational system in our country was examination-ridden and that the dead weight of the examination (at the top level as well as throughout the system) tended to curb the teacher's initiative, to stereotype the curriculum, to promote mechanical and lifeless methods of teaching, to discourage all spirit of experimentation and to place stress on wrong or unimportant things in education. It is, therefore, not surprising that any move for a change in the curriculum, teaching methods and evaluation practices should be met with resistance*". Examination also plays a negative role in the whole system of education. Excess importance to the examination has shifted the tendency in the

students from getting real education to just passing an examination. The focus of conducting examinations in the case of the making selections for the various jobs change as these are prepared for rejecting masses who apply for limited vacancies from the process by increasing the difficulty levels. Incidents of malpractices in the examinations are on the increase all over the country. The recent case of the malpractices adopted by some candidates in the case of PGI, Chandigarh MD Entrance examination is one of the examples.

### **Procedure of Conducting Examinations**

Conducting examinations in smooth manner is the result of lot of procedures and stages involved in it. Examination branches of Universities/Educational boards have to work in a systematic and time bound manner. The examination process of any course starts with inviting Examination forms from the candidates. After submission of the examination forms by candidates, their scrutiny is done by the examination branch. After checking the eligibility of the candidate roll numbers are allotted to the candidates. On the other hand examination branch also set examination centres where candidates have to appear. Appointment of paper setters and examiners is also done. In a time bound manner setting of question papers is done. Stress is laid on proper secrecy and custody of question papers by the examination branch. Next process involves printing of the question papers and their dispatch to examination centres. Examination branch also ensure about proper custody of the question papers during examination in banks/other institutions or with Co-ordinators/Superintendents of the examination centres. Appointment of Superintendents, Invigilators, Inspectors and other auxiliary staff for the conduct of examination is also done. Examination branch also have to focus on establishing the required number of examination centres. Security of the examination centres is also maintained by contacting the local administration of the area. Local administrative officers like SDM, Revenue officials, District collectors etc are requested for making security arrangements, proper supervision and ensuring fair and smooth conduct of examinations. After the conduct of examination, answer copies are collected and dispatched to the controller of examination for evaluation by the examiners. Award lists are prepared by the evaluators and dispatched along with the answer books to the controller. Examination branch also manage to check the total in each answer book. Tabulation work along with compilation of results is the next procedure done. After that the results are declared and candidates are given the mark sheets. Candidates are also given opportunity for getting their answer books re- evaluated in case they feel that their marks are less than expectation.

It is clear that for conducting an examination lot of procedures are involved. Earlier maximum examination work was done manually. Presently all the universities and school education boards are under a process of integrating ICT / computer technologies in the examination system. The recent decision of University Grants Commission in NET Examination for just supplying the information about the candidates' examination centres in the UGC/ concerned Universities website and not dispatching the numbers through post is one of the examples of integrating the technology and minimising the expenditure. Another recent decision taken by Punjab School Education Board to install CCTV cameras in all the examination centres throughout the state of Punjab for minimizing malpractices during examinations is an example of the same. This change in the examination system will minimize human intervention by adopting ICT since the technology promises compact storage, speedy retrieval of data and untiring diligent

work. Global reforms in education and challenging ICT demands have also made a remarkable shift in the structure of ICT environment and the utilization of ICT in education. ICT is having lot of possibilities in improving the whole examination system.

### **Manual versus ICT Based Examination System**

ICT can play an important role in improving the functioning of all the procedures involved in conducting proper examinations. The manual examination system is organized in well defined physical branches, like secrecy branch, evaluation branch, conduct branch etc. The dependence of all these branches on manual work makes the whole process very slow and time consuming (Bhardwaj et. al., 2008). Lot of research is being done in different parts of the world for successful ICT integration in the examination system. Meng (2011) in his research paper focused at implementing students faced mobile technologies into test and exam to simplify the exam management and performance assessment. In a study titled, Automated integrated university examination system, Bhardwaj et.al. (2011) discussed about the endless possibilities by integrating ICT with examination system. The study suggested that Automated Integrated Examination System will ensure efficiency along with effectiveness in the examination system and render convenience of on-line queries by cutting down time and cost and breaking down geographical barriers, thus bringing a sea change in the existing manual examination system.

National school of open schooling (NISO) has introduced ICT based On-Demand Examination (ODE) at Secondary (Class 10th) and Senior Secondary (Class 12th) stages of Education. Prasad (2006) elaborated the academic and technical aspects of the implementation strategies of the On-Demand Examination that is in operation in NIOS. The On Demand Examination is conducive to establish the autonomy of learner in the pace of study. Huang & Huang (2010) researched the online exam system which integrates with Struts2, spring and Hibernate. Based on completion of essential function of online exam system, the thought of S2SH (Struts2+Spring+Hibernate) framework has been adopted in their system which separates view tier, control tier, business logic tier and data accessing tier into different components, as well as utilizes MVC pattern (Model View Controller) of web system development to accomplish loose coupling between tiers. Furthermore, direct accessing to database has been prevented by delaminating the system that reinforces the security control of the system along with the technologies of Login validation and role authority.

In comparison to the ICT based examination system stress is given on paper work in the manual system. Starting with, inviting admission forms from the candidates manually involves lot of expenditure in printing the examination forms and keeping the record. The same process can be changed by integrating ICT and inviting online application by the universities and school education boards. The roll numbers are issued to the candidates manually through post. It can also be changed in the form of e- cards where whole data of the candidate will be made available with the examination centre superintendent, and candidates can also download their examination roll numbers directly by opening the website of the concerned university and examination branch link. Punjab University, Chandigarh is presently working for adopting the same.

Universities can make a data bank of the all the eligible teachers along with their email addresses who can be made appointed as paper setter. On the recommendation of the concerned committees the paper setters can be informed through electronic mails directly. The question papers can also be sent through online mechanisms directly to the centre superintendents.

University school of open learning, Punjab University, Chandigarh is presently adopting the same in the case of conducting house examinations for distance learners at different study centres located throughout the state. After the conduct of examination and evaluation of the answer copies, the result should be made available to the candidates through email addresses mentioned by them while applying online. Award lists should be also made available online, so that candidates can download that without any difficulty. The same can be also supplemented by another copy sent to him by post also.

The examination process in manual system takes too long time which results in both physical and mental strains over the candidates and people involved in the process. Preparation and printing of examination result gazettes takes a very long time. In the case of any discrepancy on the part of candidate or university result of the candidate is not declared and candidates have to visit the university again and again. For the poor candidate it is tough to clear the required objection and get his result declared by the university. The same discrepancies can be informed to the candidates through electronic mails or while filling the on-line forms there should be proper mechanism of not accepting the form in case candidate not fulfill the eligibility criteria. In the case of manual examination system students have to either correspond through postal mail or visit university even for minor queries regarding examinations. Sometimes due to increased paper load in the examination branches their correspondences/applications are not traceable. Due to which students have to face lot of problems. In the case of manual examination system chances of errors are more and whole working is time consuming. The same can be improved with the help of ICT integration. Maintaining the record of examination with transparency is also a tedious and challenging task. Using ICT in the examination system will also bring more transparency and help in further verification of the degrees and mark lists directly online by the appointing authorities. Introducing on-line examination system will also help the learner to appear directly in the assigned centre and will reduce the expenditure done on the printing, postage and evaluation. On-line tests are objective one and easy to evaluate which further make it possible to declare the examination results without any delay.

### **Possibilities of ICT Based Examination System**

ICT based examination system have lot of benefits and possibilities in the Indian context. Indian examination system is presently in the process of change from manual to ICT based. Integration of ICT can improve the whole functioning of the concerned universities and also help in improving the student satisfaction from the system. ICT based examination systems has following possibilities and will help in functioning of the examination branch by:

- Improving the coordination between different branches concerned with the conduct of examinations.
- Improving the quality of services provided to the students by the examination branches of the universities.
- Helpful in bringing transparent examination system which can be assessed by the students, parents and appointing agencies easily.
- Introducing E-exams by adopting the technology to simplify the examination process by computer aided control.
- Less dependence on the manpower and help in reducing the burden of the examination branch.

- Cost effective in long run for the universities and education boards integrating ICT in the examination system.
- Helpful in communicating with the students, teachers, paper setters, evaluators and parents.
- Easy to monitor the whole examination process by the concerned authorities while sitting in their offices.
- Less chances of examination malpractices and making the whole system very fair.
- Environmental friendly examination system by reducing the consumption of paper.

### **Challenges of Integrating ICT in Examination System**

Integrating ICT in the examination system has potential to improve the functioning of the examination system. With lot of positive aspects ICT integration is also facing lot of challenges in the country. India is not a rich country where we can change the whole picture in one day. Being a developing nation, the country is facing lot of problems in every sphere. ICT based examination system is quite costly in the initial stage and in case country manage to invest for changing the manual system to ICT we will be facing the challenges on the part of learner who have to adopt the same. Maximum universities, educational boards and selection bodies are inviting the examination applications online. Students who are rural and not have the access to the new technology have to visit cities for filling the application forms. In that case they depend on the people who are managing the cybercafés. Maximum time it has been observed that their forms get rejected due to filling wrong information by such people. Providing proper orientation to the students regarding using the technology is one of the main challenges. In one of the recent case, AIEEE test in the country is conducted on-line and off-line (traditional system) also. Slowly and slowly the selection body is trying to conduct the test in maximum centres on-line only. Like AIEEE-2012 at New Delhi centre was only conducted by on-line mode. Students who were not able to give the test on-line have to opt for any other examination centre and visit the same by investing more for appearing in the test. ICT based examinations are easy to conduct and manage. They are also very cost effective for the agency who is conducting it. But, on the other hand, for the students it has increased the cost and challenge of adopting the system without any such training or orientation by the agencies. Some of the main challenges of integrating ICT in the examination system are listed below:

- Lot of investment is needed on the part of universities and school examination boards as technology is quite costly.
- Lack of ICT trained people is another challenge, for which proper training programmes in a regular manner are to be organised.
- Less initiative taken by the state universities to integrate ICT in the examination system due to lack of funds.
- Maximum student population of the country is living in the rural areas and not has access to the new technologies.
- Changing the mindset of the people presently using manual system and making them trained.
- Orienting students to adopt new technology before shifting to the ICT based examination system.

## **Conclusions and Suggestions**

Examination is an instrument to test what the student has learned and retained in his mind during course of study. Examination are integrated part of our educational system. With the technological revolution, the electric media is replaced by the digital media or ICT and virtually every aspect of human behaviour or activity is in some way or another dependent on the new computer technologies. ICT has opened new avenues in education by way of increased accessibility of resources and better interaction processes. In the case of Examination system, all the universities and school education boards are under a process of change from manual to computer technologies / ICT. This change in the examination system will minimize human intervention by adopting ICT since the technology promises compact storage, speedy retrieval of data and untiring diligent work. ICT is very useful tool to have transparency, reliability and efficiency in university examination system. ICT is having lot of possibilities in improving the whole examination system. Trend of seeking online applications for regular, entrance /competitive examinations and conducting on-line examinations have made the system very simple and cost effective for the examining bodies. But, on the other hand, this change is also bringing lot of challenges to the rural youth of the country like India who are not that much tech-savvy. Paper suggests, adopting the technology in a planned manner and adopting student centered approach while integrating the ICT in the examination system.

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