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Exploring the challenges and strategies in information technology based assessment at school stage

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Abstract

Assessment of the students' performance forms an integral part of any process of teaching and learning. Reliable and valid assessment is very necessary to provide effective feedback to the students, to increase their level of motivation and self-esteem, to let them know how to improve and to provide remedial teaching, etc. However, all the said purposes will be served only when assessment is regular, active, clear, as well as timely. It involves professional judgment based on evidence and measurement. Since in our country most of the assessment process at school stage is related with the psychological pressure, stress and anxiety felt not only by the students but also their parents, teachers and policy makers and society at large. Hence, specific measures must be taken to ensure reliable, valid, objective and timely assessment of the students at school stage so that all can encompass the bitter and extreme ill consequences and be prepared for entire learning life besides ensuring minimum level of (quality) learning. Though many education commissions, committees and educational policies (Secondary Education Commission, 1952-53; Education Commission, 1964-66; NPE, 1986 and modified NPE, 1992) advocated the reforms in assessment process at school stage, the issue acquired the added significance after the release of NCF, 2005 by NCERT. Various issues related to assessment at school stage have been highlighted along with solutions in the position paper by NCERT (National Focus Group on Examination Reforms). With advancements in information technologies, it is now thought that it would provide solutions to many problems related with the assessment of the students at school stage. Information Technology (IT) based assessment ensures the reliable, valid, objective and timely assessment and can be applied to a wide range in School Assessment Process including various curricular and co-curricular activities. Also, IT based assessment is essential due to the realization of continuous and comprehensive evaluation in real sense as it involves varied aspects of assessment of the students that may not be judged as effectively and objectively as by the use of IT. Secondly assessment needs to be carried out through out the year which involves conduct of assessment including many pre and post assessment activities. But there are a lot of challenges related to it and suitable strategies have to be chalked out to meet those challenges. The present paper explores the challenges and strategies in information technology based assessment at school stage.

Keywords: School; Information technology; Education; Student's performance.

Introduction

Assessment of the students' performance forms an integral part of any process of teaching and learning. As part of educational strategy, assessments are being employed to bring about qualitative improvement in the students as well as the process of teaching and learning. Reliable and valid assessment is very necessary to provide effective feedback to the students, to increase their level of motivation and self-esteem, to let them know how to improve and to provide remedial teaching, etc. However, all the said purposes will be served only when assessment is regular, active, clear, as well as timely. It involves professional judgment based on evidence and measurement. In India most of the assessment process at school stage is related with the psychological pressure, stress and anxiety felt not only by the students but also their parents, teachers and policy makers and society at large. This is due to the fact that in our country most of the assessment process at school stage over emphasizes on memorization, contains subjectivity in marking due to the non availability of reliable, valid and objective items, neglects non-scholastic aspects of the students, contains single stroke exams, lacks CCE and question bank and widely mismanaged. Besides, there is limited application of assessment techniques, inappropriate interpretation of raw score and non application of

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scaling techniques. Hence, specific measures must be taken to ensure reliable, valid, objective and timely assessment of the students at school stage so that all can encompass the bitter and extreme ill consequences and be prepared for entire learning life besides ensuring minimum level of (quality) learning.

Historical background of the reforms in assessment at school stage

Historical background of the reforms in assessment at school stage Examinations have been described as the weakest component of our educational system and called as a necessary evil. Successive commissions and committees on education have emphasized the need for examination reform, consequently the reforms in the assessment process and suggested specific measures towards this end. The University Education Commission (1949) was convinced that if it has to suggest any single reform in the field of university education, it would be that of examination. The Secondary Education Commission (1953) noticed that there is the lack of validity, reliability and objectivity in examinations. The Education Commission (1966) also recognized the defects in external exams and recommended Continuous and Comprehensive Internal Evaluation (CCIE). In this context, the National Policy on Education (NPE, 1986) postulated that the examination system should be recast so as to ensure a method of assessment that is a valid and reliable measure of student development and a powerful instrument for improving teaching and learning. The modified NPE, 1992 also advocated such type of school assessment that eliminates the excessive element of chance and subjectivity, de emphasizes memorization and includes CCE. However, the issue acquired added significance after the release of NCF, 2005 as well as the Position Papers by NCERT which suggested how to ensure reliability, validity and objectivity in assessment at school stage and how to remove stress and anxiety resulting from the faulty assessment system (NCERT, 2005 & 2006; Government of India, 1948, 1953, 1966, 1986 & 1992).

IT and reforms in assessment at school stage

With advancements in information technologies, it is now thought that it would provide solutions to many problems related with the assessment of the students at school stage. The use of Information Technology (IT) in the assessment process at school stage will increase the opportunities for teachers and administrators to use computer-based techniques (e.g., item banks, electronic grading, computer-adapted testing, computer-based simulations, etc.), Internet resources, and more complex, detailed ways of reporting results. IT based assessment ensures the reliable, valid, objective and timely assessment and can be applied to a wide range in School Assessment Process including various curricular and co-curricular activities (Cobel, 1993). Also, IT based assessment is essential due to the realization of continuous and comprehensive evaluation in real sense as it involves varied aspects of assessment of the students that may not be judged as effectively and objectively as by the use of IT. Secondly assessment needs to be carried out through out the year which involves conduct of assessment including many pre and post assessment activities (McCormack and Jones, 1998).

Areas of IT based assessment at school stage

IT based school assessment may be used in a variety of ways and may cover almost all areas related to school assessment. The assessment at school stage covers two broad areas namely summative and formative; therefore, IT can be used covering both the domains:

- ***Use of IT in Summative Assessment*:** Scholastic Achievement Test (SAT) is conducted either as Class Annual/Bi-annual examination within the schools/institutions or as Public examinations covering the large domain including the many schools/institutions. Varied modes of assessments including written, oral or practical or combination of two or more testing are used in theses assessment process at school stage. IT will be helpful at every stages of the assessment process.

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- ***Use of IT in Formative Assessment*:** In the formative assessment also, IT may be used in variety of ways and in many areas like in giving and evaluating assignments and projects, class room observation, in testing communication skills: in assessing various psychomotor skills as well as affective skills, in the assessment of various co-curricular activities (literary, cultural, physical, scientific activities, etc.).

Benefits of Use of IT in the assessment process at school stage

- The assessment process will be capable of taking care of the inter and intra individual differences with reference to personal psychological attributes (assessing gifted students, assessment of the students with special needs, etc.) as well as with respect to the different curricular and co-curricular activities.
- With the help of IT it will be very easy to assess all those variables which have impact on the scholastic achievement of the students as well as on their level of motivation like educational aspirations, level of school engagement, school attendance, school adjustment and attitude towards school.
- Assessment process will become flexibility in terms of time, place and persons.
- It will be possible to have reliable, valid and timely reporting of the results.
- It will reduce stress and anxiety in assessment process to either end the examiner as well as the examinee.
- Above all it will become possible to ensure honesty and protect identity of the examinees as well as of the examiner.

Tools of IT based assessment at school stage

Research and development in computer applications over the last two decades has first applied the technology to 'mechanize' repetitive assessment task in the scoring of tests, but since then further advances in testing technologies have been made. In their prediction of an evolution of innovative technological assessments, Bunderson, Inouye and Oslen (1989) identified four generations of testing via computers: computerized testing (CT), computer adaptive testing (CAT), continuous measurement (CM), and intelligent measurement (IM). There are many more viable testing technologies that schools can adopt for implementation including Web-Based Assessments, Collaborative Project Assessments Using ITs (using electronic mail, discussion forums, video conferencing, short message service (SMS), multimedia service (MMS), etc.

- ***Hardware*:** These include computer system with all supporting accessories including printer, scanner, webcam, audio-video sensors, headphone/earphone, audio visual systems, broadcast receiving systems and telecommunication systems, media such as compact discs, videodiscs and blue ray discs, microcomputer-based laboratories, the Internet, virtual learning centres, local and wide area networks (wired and wireless), educational television, satellite communication, VCRs, cable TV, conventional and interactive radio, Closed Circuit Television (CCTV), Optical Mark Reader (OMR), Bar Code Reader (BCR), Optical Character Reader (OCR), digital camera, data projectors, etc. All may be utilized for different aspects of IT based school assessment (Mitchell, 1992).
- ***Software*:** Necessary operating system, general application packages like office work as well as specific designed software's meant for handling data management, recording, analyzing and reporting data work, etc., instructional software, voice mail, e-mail are necessary and may be used in variety of ways in the IT based school assessment.
- ***Connectivity*:** LAN as well as Internet Broadband will prove to be very helpful school assessment process.

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Challenges of IT based assessment at school stage

- ***Availability of infrastructural IT resources***: There is a lack of availability of infrastructural IT resources like hardware, software and connectivity in schools. Heavy use of English language in IT resources and on the Internet is creating a barrier for non-English speakers and to facilitate the use of local-language software seems to be very difficult.
- ***Other supporting services*****:** Other supporting services like proper electric power supply, voltage stabilizers, UPS, invertors etc. are not adequately available in Indian schools especially in the government and rurally located schools.
- ***IT trained personnel*****:** IT trained personnel are not easily available to the schools due to either non-availability in nearby locality of too costly to hire.
- ***Trained in IT oriented assessment personnel*****:** In India, when there are no sufficient schools to cater the need of the age specific population, no sufficient general subject teachers, the personnel trained in IT oriented assessment are very difficult to find.
- ***Attitude of the School staff towards the use of IT in assessment process*****:** There is less favourable attitude of the school teachers and other non-teaching staff towards the use of IT in assessment process. They prefer the traditional assessment process because of two reasons. One, they feel ease in doing the things in traditional ways, secondly they have the fear that use of IT will replace them.
- ***Awareness among the masses*****:** There is lack of awareness among the masses regarding the use of IT resources in school assessment process due to variety of reasons. The most important being the fact the innovative things are given less regard with respect to the reliability and surety of the process and product.

Strategies to meet the challenges of IT based assessment at school stage

- ***Funding the infrastructural facilities*****:** The government should fund generously to the institutions so that they may afford the above mentioned infrastructural facilities. When the budget for the school is allocated in every financial year, it must be mentioned that IT purchase must be separate from other expenses, and the money that has been allocated for the IT purchases must not be spent anywhere else. In this connection the industrialists, philanthropists and non-governmental organizations must also be encouraged to provide necessary IT infrastructural support to the schools. The institutions must also create their own resources to manage all these facilities.
- ***Deputing the IT trained personnel*****:** The government must ensure that it is providing at least one IT trained personnel in every school so that he/she may be helpful in IT based assessment. Besides this, various orientation programmes must be organized in the schools to train the teachers in IT based assessment. Those teachers who have taken the training in IT based assessment or attended such type of workshop, they must be given extra benefits during appointments, promotions etc.
- ***Collaboration with IT rich schools/organization*****:** There must be collaboration between those schools which are not rich in IT resources and those schools which are rich in IT resources. The nature of collaboration may be sharing of the information regarding the use of IT in school assessment as well as providing technical and online infrastructural support in school assessment process to the needed one.
- ***Forming/setting up a central IT Lab***: A central IT Lab must be set up in a nearby school which may cover the need of all the schools located within the radius of 4-5 kms. At every centre there should be an IT expert, an educationist, an evaluation expert and a curriculum expert and they all will collectively provide the guidance to the school teachers for IT based school assessment. At this centre various programmes

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regarding IT based school assessment will be organized and information regarding this will be shared among the school teachers.

- ***Setup of online Monitoring system*:** An online monitoring system must be set up to monitor the activities carried out by a particular school as well as by the central IT lab to ensure reliable, timely and honest results and feedbacks by the concerned school and IT lab. Also, there may be provision of online feedback from all the corners especially by parents, students and administration to run the entire system smoothly and effectively.
- The elder and senior teachers must be given IT based assessment training by convincing and taking into confidence that IT based assessment is the need of the hour. Use of IT will not replace them, rather it will facilitate their works. Hence, instead of opposing it, they will be ready to use it for the betterment of the school assessment process**.**
- Awareness among the masses especially the students and parents regarding the use of IT based assessment is very necessary as the innovation in any field at initial stage create and present less reliable picture of the system or process to the society. The parents, as well as the persons belonging to the community may be oriented towards these concepts at different occasions like parent-teacher meetings, annual functions, any other specific programmes meant for it.
- Various teacher training institutions and university education departments must ensure that they have given enough IT training to the perspective teachers that neither they will have less favourable attitude towards IT based assessment in schools, nor they will feel any incompetence in using IT based assessment in the schools. These institutions must also organize various in-service teachers' training programmes focusing on IT based assessment in schools.

Conclusion

In the present era of information technology, Indian schools should be well equipped with the necessary IT infrastructure including computer hardware, software and connectivity facilities. There is a trend towards greater broadband access and of pervasive computing in which a variety of devices for information technologies have impacted the masses. There is thus viability for a widespread implementation of computerized testing, computer-adaptive testing, web-based assessments, or collaborative project work assessments in Indian schools. The benefits of using these technology-enhanced assessment methods are well documented. These innovations can improve the assessment process.

However, there are challenges in the transformation of local schools' testing practices from a conventional paper-administered testing to technology-enhanced assessments. Most important is a change of mind-set about school testing of all involved - students, teachers, school administrators, and parents. It will become possible only when the government as well as schools along with local communities must be encouraged to develop, implement, and institutionalize IT for assessment at school stage across the country. Envisaging a logically managed set of initiatives in parallel will achieve the desired long-term objectives.

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