EVALUATION OF THE NEED & BENEFITS OF E-ASSESSMENT: A TECHNOLOGY BASED SOLUTION FOR EXECUTIVE EDUCATION IN THE INDIAN HIGHER EDUCATIONAL SCENARIO

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ABSTRACT

Life and society in the 21st century are changing rapidly and strongly influenced by facts caused from the global world. Fast development and change of information or technology that enhances nearly everything in our modern lifestyle are just some of these facts. The educational system is no exception and has changed as well over recent years. Nowadays, the growing amount of universities leads to a need of certification of the quality of these institutions for helping students in choosing a certain university. Therefore, so-called quality assurance agencies prove and certify the quality of educational institutions. One of the most important points to assure the quality is how a university treats the fields of teaching, learning and assessment.

The purview of distance learning is increasing in India. The success of Open Distance Learning (ODL) institutions in India has contributed to increased credibility and acceptance of distance learning systems as an effective mode of teaching and learning. Across the rest of the academic portfolio there is a mixture of e-assessment and paper submission. A generic aim was to provide students with a convenient distance learning package and to speed up the return of assignments with timely, contextualized feedback. Students on these awards typically submit assignments

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during placement periods and so they wanted to avoid travel into the University from placement and reduce our carbon footprint. The newly validated curricula are committed to using mainly e-submission for assessments and so this experience was important as a proof-of-concept for other module teams in managing our large student groups.

1. INTRODUCTION

1.1 Research Background

The use and support of technology in higher education and learning settings are increasing which provides a lot of possibilities for modern education (AL-Smadi & Güetl, 2008; Güetl, 2008). India leads in the low education rate when compared to many countries. In addition, since after independence, the rate of literacy was quite increasing and it is very demanding for them to get an education. Many regulations and amendments were imposed for the development of education. The purview of distance learning is increasing in India. The success of Open Distance Learning (ODL) institutions in India has contributed to increased credibility and acceptance of distance learning systems as an effective mode of teaching and learning. Across the rest of the academic portfolio there is a mixture of e-assessment and paper submission. A generic aim was to provide students with a convenient distance learning package and to speed up the return of assignments with timely, contextualized feedback. Students on these awards typically submit assignments during placement periods and so they wanted to avoid travel into the University from placement and reduce our carbon

footprint. The newly validated curricula are committed to using mainly e-submission for assessments and so this experience was important as a proof-of-concept for other module teams in managing our large student groups.

Scalise and Gifford (2006) brings out that the assessment task is the task taught, designed and enriched in a complete arena and the task is also very much important. The computer based assessment is very much useful in educational institutions. The assessment is the thing that is very secure and it also helps in developing many new technological developments and the other

things. The basic idea of the computer based assessment is the development stage and the other useful idea in the place in which it is developed. The electronic assessment is very important in Indian context i.e., it can be used to overcome boundaries caused by geographical condition and income/status disparities. It is used most commonly for compilation of exam results. In order to get rid of human errors, the hand of these electronic assessments is very important. In the past, all there was hand correction of exam papers and other things that took a lot of time and it is also lead to many mistakes and misunderstandings. So finally with the development of the new technology of electronic assessment; the total work is rejuvenated to the base level and it is very easy for the academic people to make the corrections. Keeping in view the availability of resources and capabilities of people, e-assessment has the capability to educate everyone in the nation. The entire scenario fully depends on the total regulations that are subjected in the country and it is very important to follow the regulations. There are many things to which the academics and the students must be carefully imbibed in the whole assessment of the work.

1.2 Scope of the Study

Increased student numbers and reduced student-to-staff ratios have focused attention in higher education on ways in which e-assessment can support learners starting out with varying levels of knowledge and ability.

The areas of assessment for learning will include virtual world scenarios for professional training, and web-based tools, such as e-portfolios, blogs and wikis; and the diversity of approaches that has been established in this sector. The coverage will include tools and techniques in the marketplace and qualifications using e-assessment. As on date there are many institutes and colleges under various universities are in operation. To explore the impact of various e-assessment techniques and to identify the factors which contribute to the success of e-assessment in India; various end-users & learners, subject matter experts, teaching fraternity, examinations boards, administrators and management of various organizations and institutes will be interviewed and analyzed through questionnaire from all the categories of universities mentioned above. Keeping in mind the time and cost constraints, we have selected the institutes and colleges after ensuring that the selected organization is implementing E – Learning and employs one system analyst and provides at least one module in E - Assessment.

2. Conceptual Discussion

Parshall, Spray, Kalohn and Davey (2002) points out that many innovative ideas were there in the combinations and adjustments of the education system. By that it is known as a very important case. The following future and the scope of education will be in the electronic assessment operation side and is very useful too. Furthermore, Bennett (1993) notes that a high degree of constraint in the response does not necessarily preclude structure, which may be required by many multiple-choice tasks. Nevertheless, a criticism of multiple-choice has been that they are all too readily written to measure low order skills that do not have need of significant structure. The new items and the other things must be watched carefully in order to get the results that is ever better an also very useful. The final thing is that the education system in today's world is comprised of many choices and other things; it is very good to choose the best one. Many researchers will be researching in a correct way but it is an important aspect to make a better career path for the assessment of education. All the systems are not very complimentary and making the way into a bigger one. The education system in the present scenario only gives the bad company and a very high expectation of the people and the students. It is very bad to be in this environment. Other than the advantages, there are only many disadvantages for the development of education. It is all only due to the improvement in technology (Osterlind 1998).

2.1 Introduction to the Key Concept

E-assessment is the processes of end to end electronic assessment where information and communication technology is used for recording of responses and presentation of assessment activity. This involves end to end process of assessment from the prospect of tutors, learners, regulators, learning establishments and awarding bodies and the general public. E-assessment also refers to technology use to handle and deliver assessment (Doukas and Andreatos, 2006). Electronic assessment can be used in an integrated model of assessment to provide formative, summative and diagnostic assessment. This can differ from being an online multiple choice test where students download the test and consequently upload their answers to a peer and self assessment exercise, supported by particular technology in which students are needed to evaluate work of each other on the basis of provided criteria (Angeltou et al, 2005). Electronic assessment can be used across an extent of subjects specifically familiar in science, medical sciences,

engineering and language disciplines. Electronic assessment can be used to test basic knowledge or more sophisticated and complex concepts relying on the level student has attained, the intended learning results and subject (Guidorzi and Giovannini, 2003). Electronic assessment has several strengths. Some of them are: 1) arrangements for students to be rated in varied geographical places and at varied times; 2) importance to enhance students to self estimate; 3) to assist students recognize where their knowledge is powerful or weak and seek assistance where necessary to develop their performance / knowledge; 4) capability for staff to offer students with effective and timely feedback on their performance; and 5) opportunity to provide a varied kind of assessment usually as part of a combined model to test and estimate specific knowledge or skills that traditional assessment forms cannot (Miller, 2007).

2.2 Introducing Key Terms

E-Assessment is used in this thesis as a generic term covering all uses of computers in assessment. This and some closely related terms are explored here. The term e-assessment is a broadly-based one, covering a range of activities in which digital technologies are used in assessment. Such activities include the designing and delivery of assessments, marking – by computers, or humans assisted by scanners and online tools – and all processes of reporting, storing and transferring of data associated

with public and internal assessments.

2.3 Definition of e-assessment

E-Assessment is the end-to-end electronic assessment processes where ICT is used for the presentation of assessment activity, and the recording of responses. This includes the end-to-end assessment process from the perspective of learners, tutors, learning establishments, awarding bodies and regulators, and the general public. To differentiate between different types of activity, Computer - based assessment (CBA) is used in this thesis to refer to assessments delivered and marked by computer, and computer-assisted assessment (CAA) to refer to practice that relies in part on computers – for example, use of online discussion forums for peer-assessment, audience response systems in group work, completion and submission of work electronically, or storage of work in an e-portfolio. However, it should be noted that these terms are often viewed as

interchangeable. Some form of e-assessment may be used at each of the three stages at which a learner's attainment and progress come under review:

➢ **Diagnostic** – assessment of a learner's knowledge and skills at the outset of a course.

➢ **Formative** – assessment that provides developmental feedback to a learner on his or her current understanding and skills. Formative assessment can also be described as 'assessment for learning' since an assessment that is entered into voluntarily, and on which no final qualification depends, can prompt learners to adjust their own performance.

➢ **Summative** – the final assessment of a learner's achievement, usually leading to a formal qualification or certification of a skill. Summative assessment is also referred to as assessment of learning.

Assessment of any kind can be referred to as low, medium or high stakes. A low-stakes assessment is usually formative, with results recorded locally. A medium-stakes assessment is one in which results may be recorded locally and nationally, but is not life changing. A high-stakes assessment, however, is one in which the outcomes are of high importance to both centre and candidates, affecting progression to subsequent roles and activities. A closely related concept is the e-portfolio, which can be used to document in digital form the outcomes of each stage in a learner's journey. The distinction between and e-portfolio as a record of achievement and an e-portfolio as a tool for assessment becomes blurred when the outcomes of assessments, including self- or peer-assessments in the form of diaries, blogs or wikis, are included. An e-portfolio may also be the means by which some qualifications are assessed. Assessment is central to learning and teaching. What is assessed defines what is taught and how it is learnt. The process of assessment, in turn, shapes institutional practice and affects a learner's view of the value of engaging in learning. Getting assessment 'right' is essential to the wellbeing of learners and institutions, and instrumental to the achievement of national strategies for widening participation and e-learning. Given the potential importance of e-assessment, developing a clearer understanding of what constitutes effective practice in relation to its use is now of key importance.

2.4 The potential of e-assessment

This review of current practice suggests technology can add value to assessment practice in a variety of ways. If used with skill and imagination, e-assessment – defined in its broadest sense to refer to both computer-assisted and computer based assessments – can increase the range of what is tested. It can provide evidence of both cognitive and skills based achievements in ways that are durable and transferable. It can enhance the validity of assessment systems and encourage deeper learning. E-Assessment in fact is much more than just an alternative way of doing what we already do. A growing body of evidence, some illustrated in this publication, indicates that well designed and well-deployed diagnostic and formative assessments can foster more effective learning for a wider diversity of learners. Assessment is perhaps the best way of identifying the support needs of learners and can instill a desire to progress further if linked to appropriate resources, good quality, timely feedback, and to challenging but stimulating ways of demonstrating understanding and skills.

Effective use of technology can make significant contributions here. E-Assessment can support personalization. Anytime, anywhere assessments benefit learners for whom a traditional assessment regime presents difficulties due to distance, disability, illness, or work commitments. On-demand summative assessments, when available, increase participation in learning by enabling learners to progress at a pace and in a way appropriate to them. Looking to the future, e-assessment can offer a broader palette of tools for awarding bodies, developers and academic staff to work with.

2.5 Why online assessment is of fundamental importance:

Student learning and behaviour is affected by and often led by assessment requirements (Ramsden in McLoughlin & Luca 2001). Effective flexible learning regimes require assessment to be appropriately designed to match the new learning environments and diverse clientele (ANTA1 in Clayton & Booth 2000; Booth, Hartcher & Hyde 2002). [1]

1. Nicol, D J (2006) Increasing success in first year courses: assessment re-design, self-regulation and learning technologies, paper presented at ASCILITE Conference, Sydney, 3-6 December, 2006, **www.ascilite.org.au/conferences/sydney06/proceeding/onlineIndex.html.** Also Sharpe,

R, Benfield, G, Roberts, G and Francis, R (2006) The undergraduate experience of blended e-learning: a review of UK literature and practice undertaken for the Higher Education Academy, www.heacademy.ac.uk/4884.htm

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When designing learning programs, the assessment criteria and assessment constraints are usually key determinants of the teaching and learning strategies chosen. If teachers are to engage in new forms of teaching and take advantage of the greatly enhanced teaching options now possible through online and mixed-mode teaching then it stands to reason that we need to unpack assessment options and issues if online teaching and learning is to be maximised. There is a new wave of pedagogy advocating 'alternative assessment' in which assessment is integrated with learning processes and real-life performance as opposed to display of 'inert knowledge'. Known as 'authentic assessment' it is very much based on the constructivist approach that enables students to demonstrate knowledge by working on authentic tasks, putting students in control of their own learning (McLoughlin & Luca 2001, p. 421). Constructivism is a theory of learning that advocates that students construct meaning through active participation with the environment and with others, incorporating new information with existing knowledge.

The introduction of Training Packages has focussed attention in the VET (Vocational Educational and Training) sector on the quality of assessment. There is an increased emphasis now on the need for continuous improvement of assessment strategies and processes (Booth, Clayton, House & Roy 2002, p. 4). Developing expertise and capabilities in online assessment can provide market opportunities. Many industries, particularly larger ones, have a major challenge managing skill development of employees and a lot are now developing their own in-house training programs. VET is expert in credentialing. Opportunities exist for VET to partner with industry to offer flexible assessment against industry standards, providing the sector can adapt to industry needs (Anderson 2001).

2.6 Enhancing assessment practice

We need to take into account the following as important considerations when rethinking assessment practice:

➢ Appropriateness

➢ Timeliness

- ➢ Relevance
- ➢ Accessibility
- ➢ Validity
- ➢ Quality of supporting systems

These criteria do not apply solely to e-assessment, but are significant here because the application of technology has either proved beneficial, or has prompted a reassessment of institutional, organisational or academic processes. One way in which the introduction of e-assessment may enhance the quality of the learner's experience is through the closer alignment of assessment with the pedagogic approach used – as options for modes of delivery broaden to include blended and online models, assessment in a similar form becomes increasingly appropriate and relevant.

However, e-assessment should not be viewed in isolation from the practice surrounding its use – for example, the timeliness of assessments and the quality of the feedback provided are key to learners' progress. Technology can assist by supporting on-demand delivery of tests to large numbers of learners, but the real advantage may lie in the immediacy of feedback and opportunities for further learning – for example, the anytime, anywhere availability of resources. Increasingly, a range of methods, both computer based and computer-assisted, is occurring in higher education. Online tasks involving peer- and self-assessment and increasing use of e-portfolios and assessment tools within virtual learning environments (VLEs) indicate the diversity of approaches that has been established in this sector.

Equally important is the relevance and accessibility of the assessment for the learner: Evidence suggests e-assessments can provide assessment experiences that are more authentic – through the use of e-portfolios, reflective diaries, blogs or virtual world scenarios, for example. When objective tests are the most appropriate method, interactive elements and multimedia, or confidence based marking, can make assessments more valid, accessible and engaging. Quality assurance procedures and staff training in the design and delivery of e-assessments need to respond to these new developments. For example, in preparation for increasing use of e-assessment in further education, the regulatory authorities in England, Wales and Northern

Ireland are producing regulatory principles and guidance for e-assessment. The same needs to be adopted for India as well.

These will be supported by the development of accredited qualifications for staff in conjunction with NAAC (National Assessment and Accreditation Council) and AICTE (All India Council for Technical Education) duly approved by MIT (Ministry of Information Technology). Implementation of computer-based assessment on a wide scale, however, presents a range of organizational challenges, including management of the IT infrastructure and accommodation in response to fluctuating periods of demand, and provision of dedicated technical support staff. As a result, the use of such assessments is still uneven, although highly effective in some areas.

Examination regulations need to be reassessed to encompass new practices and procedures, to address issues of authentication and accessibility, for example, and institutions or departments involved in the delivery of medium- to high-stakes tests will require contingency plans against computer failure and loss of data. As e-assessment becomes more widely adopted, institutions may prefer to place in the hands of specialists many of the issues associated with computer-based assessment, such as accessibility and intellectual property rights (IPR) in item bank development, or the maintenance of a suitable IT infrastructure for assessment delivery. Test design and item bank development may be outsourced and scanning bureau, optical mark reading units or commercial e-assessment centers used. Some universities have set up specialist units for e-assessment, taking responsibility for assessment development away from individual departments and changing the scope of the practitioner's role. The use of any form of e-assessment has increased concerns over plagiarism and malpractice, but some case studies in this review have revealed how technology can enhance the validity and security of assessments. Currently, e-assessment is more frequently found in low- to medium-stakes than in high-profile, high-stakes contexts. But this is changing, as the major awarding and regulatory bodies and institutional departments prepare for wider use of e-assessment in the second decade of the 21st century, and as a more sophisticated understanding develops of how learning and assessment can be effectively integrated into a flexible and supportive learning environment, enabled by technology.

2.9 Further Education: An Integrated Approach

Integration of e-learning and e-assessment into the fabric of the curriculum is vital to wider-scale implementation of computer-based and computer-assisted assessments in schools and further education. Distance Education Council has proposed that colleges include e-assessment in their ILT strategies – another major step towards the integration of e-assessment into an ICT-rich vision for learning.

'The assessment industry is undergoing a fundamental transformation. A decade ago, the phrase 'e-assessment' was not even in use.' Martin Ripley (2004) Educational Consultant and former Head of e-Strategy Unit, QCA".

2.9.1 Higher Education: Formative E-assessment

Increased student numbers and reduced student-to-staff ratios have focused attention in higher education on ways in which e-assessment can support learners starting out with varying levels of knowledge and ability. New pedagogic approaches are opening up, challenging perceptions that e-assessment is only suited to testing surface knowledge. Some innovative examples of assessment for

learning include virtual world scenarios for professional training, and web-based tools, such as e-portfolios, blogs and wikis, to develop skills in reflection and self-assessment. Online tasks involving peer- and self-assessment, which can capture evidence of achievement in collaborative activities, and increasing use of the assessment tools within VLEs, indicate the diversity of approaches that has been established in this sector.

2.9.2 Higher Education: Summative assessment

Longer experience of e-assessment in higher education has demonstrated the challenges and benefits in low- to medium stakes contexts. Objective tests – either computer based or on optical mark reader sheets – are well-established in subject disciplines that depend on accurate recall of knowledge. With effective integration of interactivity and multimedia, these have established a valid role and purpose, but are still not used in all disciplines.

Issues of plagiarism and authentication of candidates' work present considerable challenges. Nonetheless, applications of computer-based assessment in high-stakes contexts are being piloted and innovative developments from these trials can be transferable to other subject areas.

Learners need:

➢ Access to computers and learning resources out of school

➢ High-quality web-based assessments for learning

➢ Innovative games-based assessments for learning

➢ A unique learner number

➢ Opportunities to personalize their learning, by taking some assessments online when ready

Many older learners are also finding benefit in e-assessment due to the respite this provides from traditional written examinations, the convenience of on-demand testing and the greater likelihood that results will be based on objective and accurate marking. However, the full value from the learner's perspective can only be obtained where access to computers is widely available and adequately supported with guidance. Learners also need rich and timely feedback on formative assessments and a personal online space for recording and evidencing attainment in an e-portfolio.

2.10 Barriers and Enablers in Computer-Based Assessment

(CBA) in higher education has been in institutions where systems and tools development has been seeded by project funding. Even then, use is often limited to a few departments. Scaling up the use of e-assessment requires financial commitment and senior management support. Where these exist, many of the case studies show that there is a greater confidence in the capability of e-assessments to deliver a return on investment, and a wider acceptance of the benefits of change amongst staff. Effective e-assessment for formative purposes can be set up relatively simply by using the assessment tool within the institution's VLE, but a sustainable programme of technical and pedagogic support for academic staff is still needed. In most cases, wider scale use has only been achieved when a central support unit has been set up. Medium- to high-stakes e-assessments demand a dedicated team whose role is to ensure the reliability of systems provide technical support to academic staff and facilitate interoperability with other systems in the

institution. The next stage of development is to create item banks that can be shared between departments, or even between institutions. However, mutually compatible interfaces adhering to universal technical standards have to be in place to make systems fully interoperable. These complex and costly issues have been barriers to vigorous growth in computer-based assessment. In the schools and further education sectors in India, the cost of development of secure systems for use across a range of qualifications is currently borne by awarding bodies, and that investment is only made when there is a sound business case. As a result, despite valuable and successful pilot schemes, it may be some time still before online public examinations are available across the curriculum. A prevailing public mood of conservatism over changes to the formal examination system is a further curb to innovation.

A different picture emerges, however, when a close-knit community of institutions, supported by funding from central government, and a single awarding/regulatory body collaborate on an integrated e-learning and e-assessment environment. Donnan (2007) has described that the researcher conducts a study among the Australian University students about the result of the online components inserted to students is right or something very unusual and a failure. To make the enquiry, four research questions were framed and was given to students of the university. They were asked to write the answers for them. The questions were focused on the characteristics of the educational system provided in the university and the quality of education they were given and they thought of. It is very positive to get the results in a good way. The main concept of the study revolved around the fact that assessment has to be fully done in online and in order to get good results and also some more practiced output will be good enough to make the research properly. By doing this, the real output can be revealed from the student so that the system might be continued or to be stopped.

Data collections were involved in many aspects. The qualitative results were interpreted and the findings were:

1. The relevance of the results were very apparent with the characteristics of the educational developers were fully described.

2. Significant influences were evolved among the researchers and it was emancipated as a component from the respondents.

3. There were some critical issues identified from the respondents and around some many issues were faced by the academic professionals in the online education and the online assessment system. Online assessment will be very critical in the first moment and it is also very impractical to follow that in the first attempt.

4. The aspects of the educational developers were revealed in three criteria. That is the assessment of online with traditional campuses, assessment of online with support model with traditional campuses and strategically off- campus etc.

And since it is very useful the people accepted it in order to be developed in the state. The online education and the electronic assessment system are very highly depended on the programming languages and the programs should be very uniquely coded. The codes should be much commanded and in order to give suspension to many criteria, the Unicode formula was followed. This will be done only by the highly knowledged people and stunned professionals. Venkatraman, Mukundan and Shankar (2003) described that the electronic assessment in the educational sector is the most invented stage in the criteria of the educational sector. By the very generous development of education in the recent scenario, it is very usual that the all education needs has to be turned to an electronic assessment. The electronic assessment has a very vast impact on the education sector, particularly in the higher educational area. It is very useful for the academic professional for the evaluation of papers and results indicating the academic health of students, it is very vastly required and it is fully pinned with the advantageous programming language. Thus the development of the technology makes many cases successful in the educational sector also and indeed a great mentor.

2.11 Aims and Objectives of the Study:

Aim: To Study of Role of E-Assessment in Higher Education (especially with respect to Executive Education) in the Indian Context

2.12 Research Objectives:

Primary Objectives:

i. To explore the impact of various e-assessment techniques in Higher Education in terms of level of achievement, trainability, validity, practicality (challenges and benefits), trust, security, reliability and fairness in the Indian context.

2.13 Research Questions in this regard:

The following are questions for which this research is intended to find the answers:

i) What is the need for e-assessment system needed in higher educational institutions?

ii) What are the benefits of using e-assessment in higher educational institutions?

2.14 Research Limitations:

1. This research is limited to India alone.

2. This research is limited to higher education system in India alone.

3. This research evaluates exclusively the role of e-assessment in higher educational institutions.

2.15 Limitations of the Study Particularly in Case of E-Assessment in Executive Education:

1. Barriers to effective use of online assessment identified by Paulsen (2000) in an international study to inform decision makers included: public and institutional regulations, traditions for physical attendance, technical limitations, student identification, and detection of plagiarized digital material.

2. Bonk, reporting on his research of online learning experiences within educational institutions (2001) and training corporations (2002), claimed that non-use and feedback from research surveys indicate a need for more sophisticated and a greater range of online assessment options to increase both use and effectiveness of online assessment. And, that there were shortcomings in the current range of options.

3. Clearly technology lends itself better to some forms of assessment than to others, but mostly barriers often relate to teachers knowing sufficient about the available options and being able to confidently connect the appropriate assessment options to the different teaching and learning strategies they might employ. Teachers also need to feel confident they can overcome some of the issues associated with online assessment.

4. The pragmatics of time, available resources, cost, and lack of support are also often listed as barriers (Booth, Hartcher & Hyde 2002; Anderson 2001). All these factors can pose as limiters to the proposed study.

3. Research Methodology

3.1 Introduction

A total of 683 executive distance education students belonging to 7 different universities in India were surveyed for the study using questionnaire containing closed-ended questions. The research design adopted in this study is descriptive research and the sampling technique involved is simple random sampling. Cross Tabulation, Chi- square testing, Factor Analysis, Principal Component Analysis and ANOVA has been adopted for test of hypothesis and the statistical software employed is SPSS. The researcher has managed to maintain validity and reliability despite several limitations adhered to ethical constraints strictly in conducting the research.

3.2 Research paradigm

This study follows **positivism** as the research paradigm. Positivism is the view that process of social science must be similar as possible those of natural sciences. The goals of positivist approach are to provide descriptions leading to predictability and control. Positivism has been a prevalent way of knowing the social world (Babbie, 2004). The present research is said to have adapted positivism since predefined hypotheses are tested in this research.

3.3 Research approach

This study adapts **deductive approach**. The present research is said to have adapted deductive approach since it investigates the importance of e-assessment systems in higher education through quantitative or numerical data collection from primary respondents.

3.3.1 Research design used in this study

This study makes use of descriptive research design. The descriptive research is used to recognize issues or justify practices and conditions. It also makes evaluations and comparisons and gathers brief factual information which depicts the occurring phenomena (Howe, 1992).

3.3.2 Sampling design adapted

This research makes use of probability sampling or simple random sampling. According to Christman (2000) simple random sampling is best suited for quantitative analysis. In simple random sampling, a series of random numbers are produced and the units having those numbers are involved in the sample. Simple random sampling is the basic method of sampling regarded in

statistical estimates of social research. A simple randomsample of size n from a finite population of size N is a sample chosen such that every possible sample of size n has similar probability of being chosen (Henry and John, 1982). Simple random sampling is said to have been adapted in this study since each and every student who is a part of any of the 7 target universities has an equal probability of being surveyed.

3.3.3 Sampling unit

The sampling units are the following 7 universities in India that make use of e-assessment systems for conducting exams for students pursing executive education through distance mode.

i. IMT Ghaziabad

ii. Symbosis, Pune

iii. Sikkim Manipal University

iv. Vishweshriah Technological University

v. Gujarat Technological University

vi. Apeejay Satya University

vii. Jawaharlal Nehru Technological University

3.3.4 Target population

The Survey Questionnaire were distributed among 750 students belonging to the above mentioned universities, out of which 683 responses were received. The Survey questionnaire was distributed through online and offline modes. Thus the target population in this research is 683 students pursuing their executive education through distance mode at any of these target universities in India.

3.3.5 Sample size

The sample size is 683 students.

3.3.6 Hypothesis testing

Hypothesis testing represents the validity of the consideration with a view to select between 2 conflicting hypotheses about the population parameter value. Hypothesis testing supports to

determine on the sample data basis whether the hypothesis about the population is likely to be correct or incorrect (Tripp, 1992). The following hypotheses are to be tested in this study:

1. H1: Null Hypothesis: E-assessment systems are not a better choice since they save paper, energy as well as time.

Alternate Hypothesis: E-assessment systems are a better choice since they save paper, energy as well as time.

2. H2: Null Hypothesis: E-assessment system does not offer marks without bias and not motivate students to learn better.

Alternate Hypothesis: E-assessment system offers marks without bias which motivates students to learn better.

4. Analysis & Interpretation

The main objective of this study is to determine the impact of e-learning course for adult students. Also, we try to determine whether e-assessment systems are not a better choice since they save paper, energy as well as time.In addition, we try to find the challenges that the students faced while using e – learning courses. The frequency distributions of the demographic variables included in this study are given below:

Gender:

Gender

|		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	464	67.9	68.8	68.8
	Female	210	30.7	31.2	100.0
	Total	674	98.7	100.0	
Missing	System	9	1.3		
Total		683	100.0		
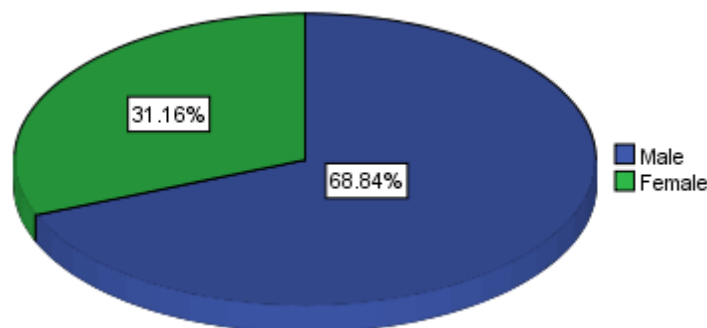
Majority of the respondents participated in this study were male students. Nearly 68.8% of them were male students and 31.2% of them were females

Age Distribution:

Age Distribution

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	16 - 25 Years	331	48.5	49.2	49.2
	26 - 35 Years	176	25.8	26.2	75.3
	36 - 40 years	44	6.4	6.5	81.9
	More than 40 Years	122	17.9	18.1	100.0
	Total	673	98.5	100.0	
Missing	System	10	1.5		
	Total	683	100.0		
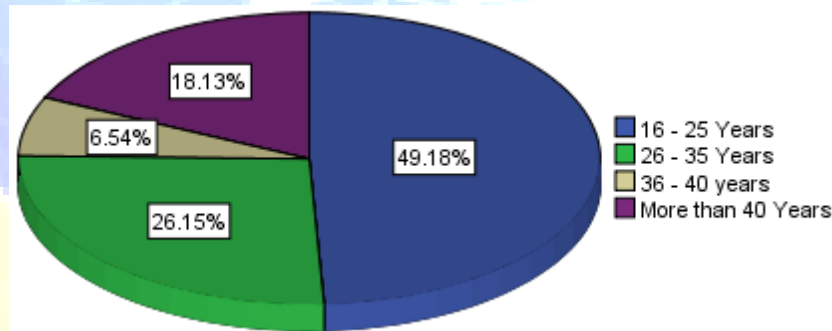
Age distribution of the respondents varies from 16 and 55 years. The mean age of the respondents participated in this study is 29.84 years with a standard deviation of 10.34 years. Nearly 49.2% respondents participated in this study are in the ages between 16 and 25 years and 26.2% respondents participated in this study are in the ages between 26 and 35 years

Test – 1

E-assessment systems saves paper, energy, time * E-assessment systems helps in saving time Cross tabulation

			E-assessment systems helps in saving time					Total
			Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
E-assessment systems saves paper, energy, time	Strongly Disagree	Count	4	0	2	7	6	19
		% within E-assessment systems saves paper, energy, time	21.1%	0.0%	10.5%	36.8%	31.6%	100.0%
	Disagree	Count	4	9	17	15	14	59
		% within E-assessment systems saves paper, energy, time	6.8%	15.3%	28.8%	25.4%	23.7%	100.0%
	Neutral	Count	3	19	12	48	29	111
		% within E-assessment systems saves paper, energy, time	2.7%	17.1%	10.8%	43.2%	26.1%	100.0%
	Agree	Count	2	13	31	85	75	206
		% within E-assessment systems saves paper, energy, time	1.0%	6.3%	15.0%	41.3%	36.4%	100.0%
	Strongly Agree	Count	8	11	14	58	152	243
		% within E-assessment systems saves paper, energy, time	3.3%	4.5%	5.8%	23.9%	62.6%	100.0%
Total		Count	21	52	76	213	276	638
		% within E-assessment systems saves paper, energy, time	3.3%	8.2%	11.9%	33.4%	43.3%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	119.825[a]	16	.000
Likelihood Ratio	107.330	16	.000
Linear-by-Linear Association	51.601	1	.000
N of Valid Cases	638		

a. 11 cells (44.0%) have expected count less than 5. The minimum expected count is .32.
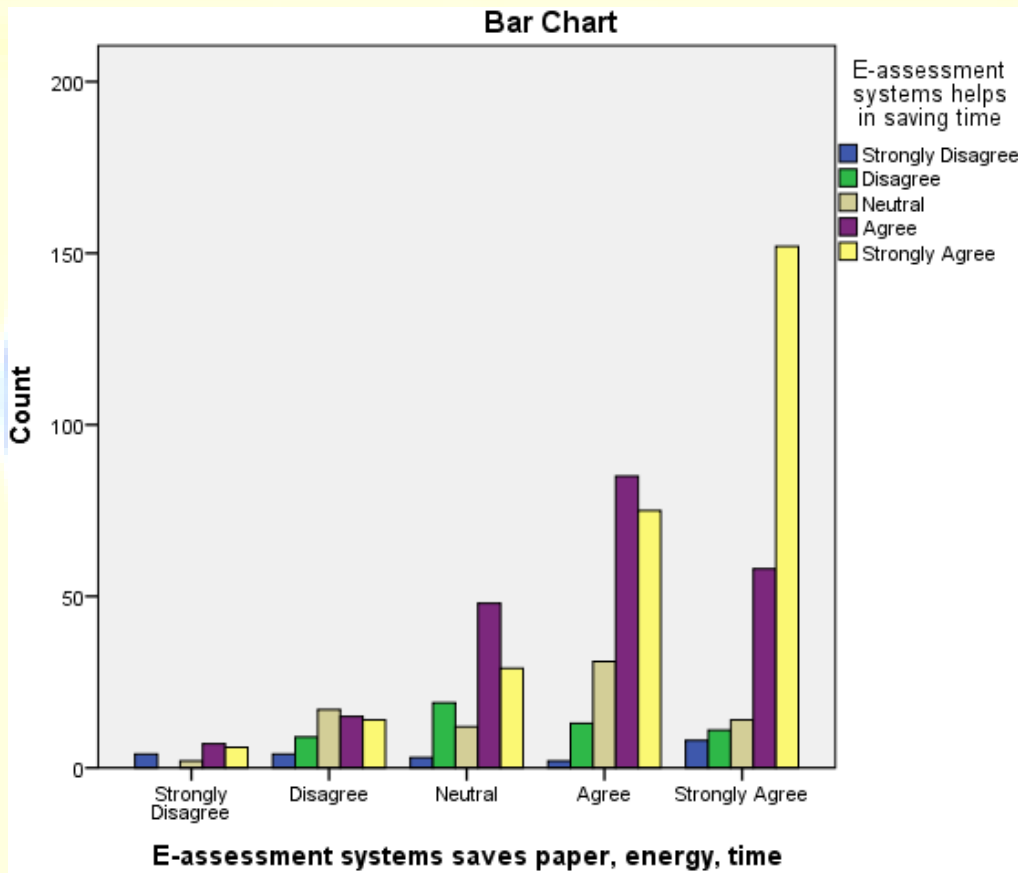
Nearly 62.6% respondents strongly feel that e-assessment systems are a better choice since they save paper, energy as well as time. In addition, they also strongly agree that E-assessment systems help me in saving time in writing pages of answers (Chi – Square test statistic = 119.825, p – value = 0.000 < 0.05). Thus, there is strong evidence to state that E-assessment systems are a better choice since they save paper, energy as well as time.

Test – 2

E-assessment systems unnecessary expense

	Observed N	Expected N	Residual
Strongly Disagree	148	122.6	25.4
Disagree	187	122.6	65.4
Neutral	120	122.6	-2.6
Agree	89	122.6	-33.6
Strongly Agree	69	122.6	-53.6
Total	613		

Test Statistics

	E-assessment systems unnecessary expense
Chi-Square	71.788[a]
df	4
Asymp. Sig.	.000

a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 70.8.
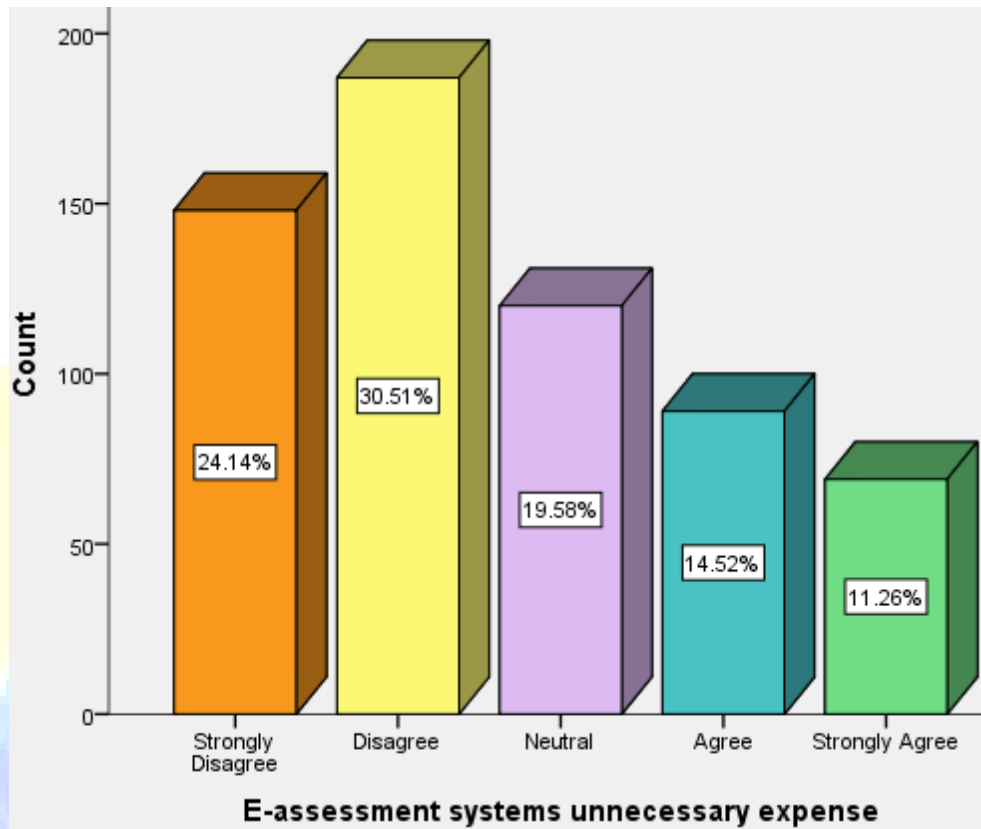
Nearly 42.86% respondents strongly feel that feel that e-assessment system is not an unnecessary expense to the educational institution (Chi – Square test statistic = 71.788, p – value = 0.000 < 0.05).

Test – 3

			E-assessment systems offers marks without bias					Total
			Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
E-assessment systems is must for Education	Strongly Disagree	Count	3	0	4	5	3	15
		% within E-assessment systems is must for Education	20.0%	0.0%	26.7%	33.3%	20.0%	100.0%
	Disagree	Count	4	6	8	15	3	36
		% within E-assessment systems is must for Education	11.1%	16.7%	22.2%	41.7%	8.3%	100.0%
	Neutral	Count	4	6	27	43	16	96

	% within E-assessment systems is must for Education	4.2%	6.2%	28.1%	44.8%	16.7%	100.0%
Agree	Count	9	20	44	124	72	269
	% within E-assessment systems is must for Education	3.3%	7.4%	16.4%	46.1%	26.8%	100.0%
Strongly Agree	Count	5	10	49	73	85	222
	% within E-assessment systems is must for Education	2.3%	4.5%	22.1%	32.9%	38.3%	100.0%
Total	Count	25	42	132	260	179	638
	% within E-assessment systems is must for Education	3.9%	6.6%	20.7%	40.8%	28.1%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	54.368[a]	16	.000
Likelihood Ratio	49.557	16	.000
Linear-by-Linear Association	24.594	1	.000
N of Valid Cases	638		

a. 11 cells (44.0%) have expected count less than 5. The minimum expected count is .20.
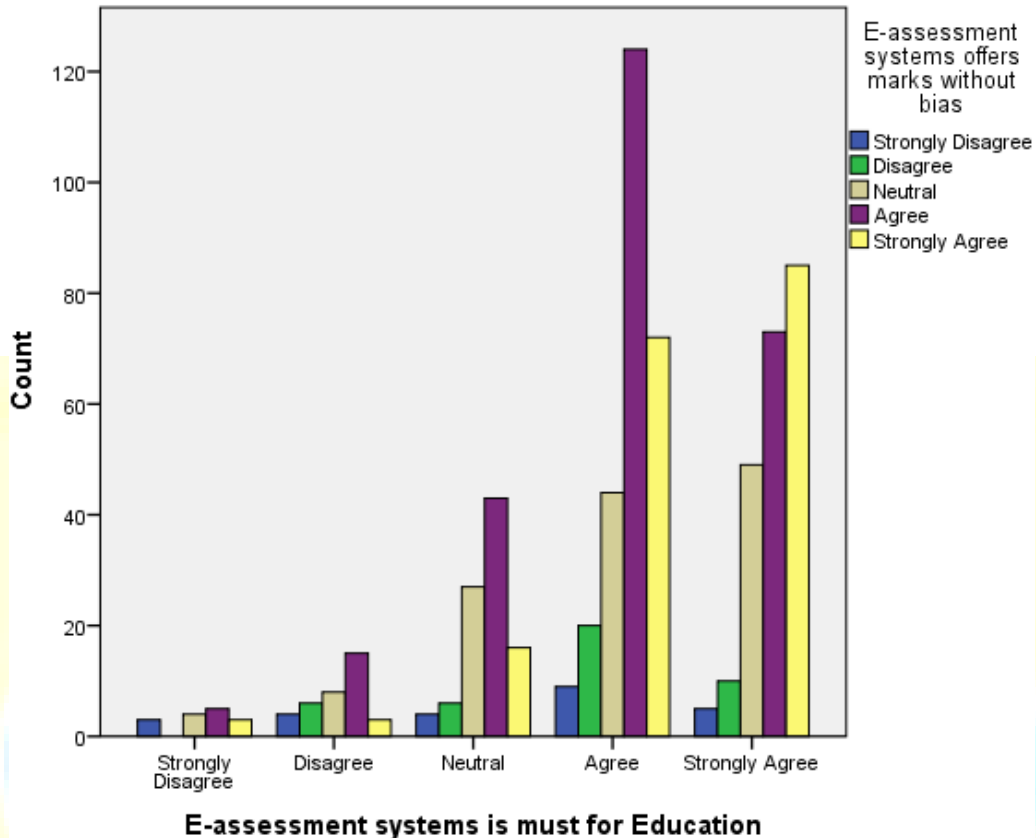
Nearly 46.1% respondents feel that e-assessment systems are a must to educational institutions especially at the higher education level. In addition, they also agree that E-assessment system offers marks without bias which motivates me to learn better (Chi – Square test statistic = 54.368, p – value = 0.000 < 0.05). Thus, we understand that E-assessment system offers marks without bias which motivates students to learn better

Test – 4

Since e-assessment system has no bias			
	Observed N	Expected N	Residual
Strongly Disagree	91	125.2	-34.2
Disagree	106	125.2	-19.2
Neutral	181	125.2	55.8
Agree	154	125.2	28.8
Strongly Agree	97	125.2	-31.2
Total	626		

Test Statistics

	Since e-assessment system has no bias
Chi-Square	51.556[a]
df	4
Asymp. Sig.	.000

a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 71.2.
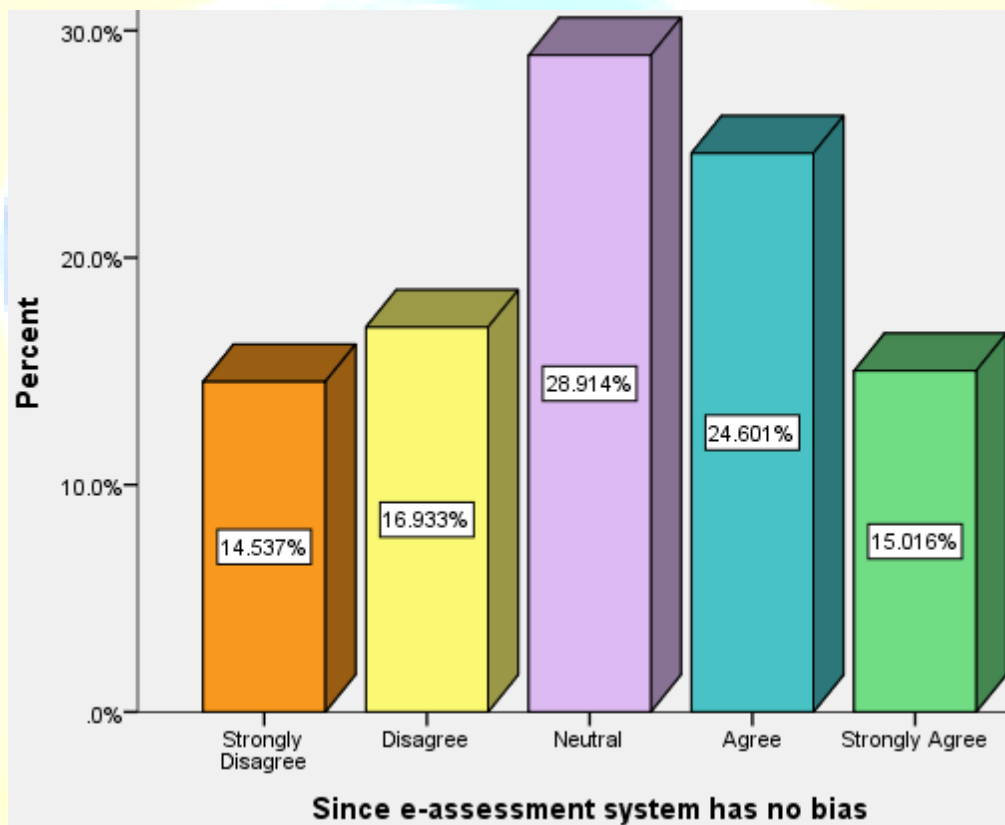
Nearly 24.601% respondents said that they are not able to convince my faculties to put a pass mark at times of my poor performance due to e – assessment system. This indicates that E-assessment system offers marks without bias and the students must have to learn better to get good marks (Chi – Square test statistic = 51.556, p – value = 0.000 < 0.05)

4.2 Findings

68.8% of them were male students and 31.2% of them were females. The mean age of the respondents participated in this study is 29.84 years. 49.2% respondents participated in this study are in the ages between 16 and 25 years. 26.2% respondents participated in this study are in the ages between 26 and 35 years. 62.6% respondents strongly feel that e-assessment systems are a better choice since they save paper, energy as well as time. They also strongly agree that E-ssessment systems help me in saving time in writing pages of answers. 42.86% respondents strongly feel that feel that e-assessment system is not an unnecessary expense to the educational institution. 46.1% respondents feel that e-assessment systems are a must to educational institutions especially at the higher education level and also agree that Eassessment system offers marks without bias which motivates me to learn better

4.3 Summary of Hypothesis Result

Thus, the Null Hypotheis H1: E-assessment systems are a better choice since they save paper, energy as well as time is supported and Null Hypothesis H2: E-assessment system offers marks without bias which motivates students to learn better is supported.

5. Conclusion

Nearly 46.1% respondents feel that e-assessment systems are a must to educational institutions especially at the higher education level. As the use of elearning developments in higher education increases the opportunity for e-assessment also develops. In its widest sense e-assessment includes the use of ICT for any assessment exercises. Arabasz, Pirani and Fawcett (2003) suggests that if teaching and its related resources become electronic then assessment will require to take that route to assure alignment between the assessment and teaching modes. E-assessment is the use of ICT in varied educational processes to enhance and support learning in

higher education institutions. This involves the use of information and communication technology as a supplement to online learning, traditional classrooms or combining both modes (OECD, 2005). E-assessment provides educational institutions and their students the place flexibility and time of receiving or delivering learning information. Continuing professional

enhancement practices in nowadays fast moving work place surroundings increasingly includes the use of modern techniques as a quest to offer a responsive and flexible experience of learning (Smedley, 2010).

More than half of the respondents strongly feel that e-assessment systems are a better choice Since they save paper, energy as well as time. In addition, they also strongly agree that E-assessment systems help me in saving time in writing pages of answers. Wang (2004) has mentioned that providing a course through e-assessment saves money and time of students on printing costs. Instead of printing guidance notes they can be dynamically shown on computer screen. This can have a huge influence on surroundings by reducing down waste of paper. Thewall (2000) has described that computers and technology benefit students in the classroom. The last need of e-assessment is that e-assessments systems are unnecessary expense where half of the respondents strongly feel that e-assessment is not an unnecessary expense to educational institutions. According to Bull and Dalziel (2003) one of the challenges that e-assessment committee took for granted is the significance of pre implementing an e-assessment readiness and a needs assessment. Instead the committee started with technology options before deciding the readiness of students for e-assessment. As a result Gipps (2003) described that students were very slow to purchase into the e-assessment idea with several lecturers opting either to refrain from e-assessment training or discredit it as they showed e-assessment as an unnecessary and a premature expense which represent lack of computers among university students and staff members.

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