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## ICT IN EDUCATION: AN ANALYSIS FROM THE PERSPECTIVE OF MAINTAINING ACADEMIC INTEGRITY

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### ABSTRACT

21<sup>st</sup> century is the century of 'science and technology'. The modern technology, a boon for every sector, can be realized in education also. Technology greatly helps individual on the path of academic integration. Academic integration is tied with the status and personal characteristics of an individual that contributes towards an ethical and moral system of the concerned institution. It includes values and norms in each and every academic work which leads to proper functioning of academic institute with ethics and principle which ultimately leads to excellence. The concept of academic integration, evolved from its traditional view of character development, is more a social perspective now. Along with the advancement of science and technology, people are exposed to global world where technology plays an important role in social networking. This paper deals with the influence of science and technology in maintaining academic integration. It focuses on the two fold influence of technology on the educational system and how it ultimately impacts upon academic integrity. The two fold influence includes the factors that foster academic integrity and the factor in the contrary which creates academic dishonesty leads to deterioration of academic integrity. In former case, Technology fosters academic integrity with its wider scope for learning. For instance, information and communication technology provides a large forum in many websites for open discussion to people all over the world who can participate in the forum and put forth their views. In other way, in academic institution, the data base of the information related to all concerned accelerates the academic process in terms of easy access, perseverance and utilization of all information's. In classroom learning, ICT has greater impact in building student's social skills and coherence among the peers and other members of the society

through synchronous e- learning where they can avoid the feeling of isolation. In asynchronous learning students can be able to follow the curriculum at their own pace. Ideally effective e-learning, includes synchronous and asynchronous learning, develops honesty, disciplines throughout its procedure. In other way, a proper evaluation can be possible through technology like use of CCTV camera, online assessment etc. Technology also, in other way, if not managed and maintained properly leads to academic dishonesty like plagiarism occurs very easily through the use of technology. As a result less innovation we have in research at present. In asynchronous e-learning also, students have the scope of dishonesty which affects reliability of the test itself as well as of the test result. In spite of having some demerits in use of technology, it's contribution in today's world in maintaining academic integrity is inevitable in terms of developing honesty, disciplines, norms, values and most importantly in developing a perfect system with accuracy, correctness, preciseness, ease of accessibility and maintaining quality which is really can be considered as a boon for academic integrity.

**Key words-** Academic integrity, Synchronous e- learning, Asynchronous e-learning, Plagiarism, Academic dishonesty.

## INTRODUCTION

Twenty first century is the century of “Science and technology”. The boon of Science can be realised in every sector and the overall effect of it accelerates the progress of the human race. In a very short period we have seen drastic revolution in the field of Science as well as its furious image in the form of destruction. It has a significant effect on people's social life.. Which affect their integrity. Integrity is the honesty or truthfulness of one's action. This shows how an individual is maintaining consistency in his or her feeling, behaviour and action with a standard ethics. It is the inner sense of wholeness which derives from the qualities of honesty and consistency of character. An individual is said to possess integrity of the individual's action are based upon an internally consistent framework of principles. Individual's action, belief, methods, measures, principles all derive from a single group of values, which we can say standards of morals or standard of ethics. In other words, Integrity functions as forms of the “social contract” in which the individual relinquishes certain rights. For an educational institute all the stakeholders concerned require to maintain an integrity in them which evolved as a concept of academic integrity. Academic integrity includes values and norms maintained in each and every academic work which leads to proper functioning of academic institute with ethics and principle which ultimately leads to excellence. Academic dishonesty refers to a behavior or set of behaviors that lead to the misrepresentation of scholarly work (International Center for Academic Integrity (ICAI, 2015). These behaviors include plagiarism, fabrication, deception, cheating, bribery and paid services, sabotage, and/ or impersonation. (ICAI, 2015). Academic integrity starts from awareness of each and every individual. Individual perspective of academic integrity includes inherent goodness, universality and

absoluteness of independence, originality and authorship (Valentine, 2006). The concept of academic integrity, evolved from its traditional view of character development, is more a social perspective now. The shift to social perspective don't suggest individual authorship, rather highlights the need to consider the importance of deconstructing how the idea of "individual author" might be serving the goals of teaching learning, service and Research. in addition to it with the advancement of technology influence every aspect.

The purpose of this paper is to study the two fold influence of computer technology especially ICT on academic integrity i.e. to study positive influence of ICT upon academic integrity in this knowledge century; the strategies to be followed to get the maximum benefit out of incorporation of computer technology as well as to study the limitations of the computer technology in respect of deteriorating academic integrity which leads to create academic dishonesty.

Technology is the knowledge of techniques, processes and the like that makes our life easier through a scientific way. The development of technology may draw upon many fields of knowledge, including scientific, engineering, mathematical, linguistic, and historical knowledge, to achieve some practical result. This paper concerned with the computer technology and its influence on academic integrity. The form of technology evolving from simple computing technology to more complex information and communication technology. Technology constantly changes on the basis of new discoveries and inventions the effect of which are complex, hard to estimate accurately and likely to have different values for different people at different times. Its effect depends upon people's decisions about development and use. Hence, it acts as two fold sword which is a boon for human race in the field of medical science, engineering, Education, industry and all other sectors. As education is the foundation for the development of human being as well as which have a great contribution for national development the quality maintained in this system is essential for overall development of human being. Here, the role of technology acts as a catalyst. By virtue of computer technology a large number of information available to millions of people simultaneously. Hundreds of sources for single information can be found out from the internet.

## ICT AND ETHICS

Most of us have a common notion that technology is deteriorating our ethics and morals that we used to constitute earlier in our society. But findings show that plagiarism and other academic dishonesty was occurring earlier before the advancement of information and communication technology where researchers and students were simply copying the text of other articles or books which was difficult to prevent or detect. Along with this search of sufficient and proper source material was also difficult for a researcher. In present time ICT is very much helpful in finding adequate original source material. It also helps to detect plagiarism through various software which controls academic dishonesty.

Academic dishonesty may be categorized as exam cheating and plagiarism based on the nature of the acts. In cheating exams, **Etter et al. (2006)** state that we can have a list of activities including copying

from others, having or using notes, formulas or other information in a programmable calculator or other electronic device without explicit teacher review and permission, having or using a communication device such as a cell phone, pager, or electronic translator to send or obtain unauthorized information, taking an exam for another student, or permitting someone else to take a test for someone else and asking another to give you improper assistance, including offering money or other benefits and etc.

Secondly, under plagiarism, practices like, giving or getting improper assistance on an assignment meant to be individual work, including in any assignment turned in for credit any materials not based on your own research and writing. This includes: using the services of a commercial term paper company, using the services of another student and copying part or all of another person’s paper and submitting it as your own for an assignment. In addition, acting as a provider of paper(s) for a student or students, submitting substantial portions of the same academic work for credit in more than one course without consulting both teachers, failing to properly acknowledge paraphrased materials via textual attribution, footnotes, endnotes and/or a bibliography and citing nonexistent sources (articles, books, etc.) are seriously considered as acts of plagiarism.

Some professors and administrators complain about technology-related cheating, others have used technology to make cheating easier to detect and minimize. While assessing any academic work which takes the help of technology the following questions should be considered:

- Is it illegal?
- Does it violate ethical codes?
- Does it bother your conscience?
- Does it look as though someone is likely to be harmed? (Bodi, 1998).

## USES OF COMPUTER TECHNOLOGY TO MAINTAIN ACADEMIC INTEGRITY

- **Using prevention technology**

Prevention of plagiarism can be somewhat better controlled for which feature should be there in the system where screenshot of online activities of the students can be taken. So that students are being aware about their originality. In another way also students can be aware during an online test when the exact time for the start and end of test is set in prior so that they can’t even opt for excuses for problems like log in or log out

- **Software for Plagiarism detection of academic writings**

In the advancement of information and communication technology various types of software for plagiarism detection are being developed for the sake of controlling dishonesty in academic writing. Plagiarism detection software is a powerful tool in fighting against plagiarism. Several new software companies are giving instructors even more firepower to fight cheating. Turnitin.com, SafeAssign, and a few

other new companies have built up databases of millions of school papers, books, articles, and Web pages that they compare against the works of students and scholars. Millions of students around the world now turn in their work electronically to the companies so that the programs can highlight parts that match other sources. Teachers sign on to the companies' sites to look at the results and decide how much similarity is too much.

- **Using Webcam to detect plagiarism during test**

The most acceptable technology for invigilation during a test is the use of a 360 degree webcam. This aware the students as well as helps in detecting the students doing misconduct. It is more helpful if the university or the institution don't have any plagiarism detection software or in the case of offline test or paper pencil test.

- **Intellectual Property Right**

In this era of knowledge century we can consider knowledge as capital. It is the need of the hour to protect this knowledge capital through intellectual property right. Intellectual property rights include patents, copyright, industrial design rights, trademarks, plant variety rights, trade dress, geographical indications etc. for a research work also it is highly essential for a researcher to protect their work through intellectual property right.

- **Anti cheating hardware**

It is a hardware which upgrade from fingerprints to palms and allow their computers to flag anyone who's current name and palm don't match previous records. In this way a computer can check misconduct by differentiating the literary works of the person and the person really attempting the test.

- **Online testing**

Online testing is an effective measure to control dishonesty or misconduct in a university or any other educational institute. For online classes, professors require students to take their exams and quizzes through a regional testing protocol system. Additionally, professors can check IP addresses, have students submit screen shots with assignments, and participate in challenged and timed tests and assignments where the questions are random and shuffled (**Herberling, 2002; Lytle, 2012; Khuder, 2011; Stuber-McEwen et al., 2009**).

Opportunities for education and prevention of student cheating in the online environment are significant. Olt (2002) identified four strategies for online instructors as tools in preventing academic misconduct. These strategies are to identify limitations for the student instructor relationship, design effective, mastery based online assessments, curriculum rotation and to provide students with a written academic dishonesty policy.

Ken Parker, founder and CEO of NextThought, is trying to harness the power of the social network to aid the learning process. "Technology offers powerful new assessment techniques well beyond multiple choice tests. What if a student's entire digital history comprised their assessment rather than only a few high-stakes exams? One powerful example: tap into the online community's assessment of a student. A student's community interactions and contributions could be analyzed. How did the community feel about the quality of their questions (lame or great) or contributions (useless or helpful)? Not only would this type of assessment encourage greater engagement and helpful community behavior, it's harder to cheat the system (and the community)." (**Ken Parker**)

- **Providing Synchronous and asynchronous e-learning environment**

This kind of learning tool is real-time. It is like a virtual classroom which allows students to ask, and teachers to answer questions instantly, through instant messaging, which is why it is called synchronous. Rather than taking lessons alone, students associating themselves with synchronous e-learning software or online courses can easily interact with fellow students and their teachers during the course. Examples of synchronous e-learning are video conferencing with eminent persons, instant chatting in social networking sites

On the other hand, Asynchronous learning can be carried out even while the student is offline. Asynchronous e-learning involves coursework delivered via web, email and message boards that are then posted on online forums. In such cases, students ideally complete the course at their own pace, by using the internet merely as a support tool rather than volunteering exclusively for e-learning software or online interactive classes. Examples of asynchronous e-learning are message boards, discussion group and self pace courses. many augmented courses are allowed in message boards, allowing learners to post questions and comments on a central board for the other users to see. In discussion groups, we go one step further than message board which allows students in the same course to discuss the material in real time. Self pace courses are completed at one's own pace. There are no deadlines for course completion.

Through all the process of these two types of learning, students interact with one another as well as learn from eminent persons there by develop a 'we feeling' and morals and ethics which greatly contributes to develop our value system.

- **Opportunity for online discussion forums**

When we interact with people about any idea our pre-existing ideas becomes more stronger and widens our sphere of knowledge which bring some change in our own frame work of knowledge and helps to make it more qualitative, rich and reliable. This discussion is limited with limited participants in face to face discussion. Whereas in the open discussion forums provided in many websites, the people all over the world



to interact with one another. This brings the ideas from various communities, cultures and different geographical regions together in the forum. Discussion forums should be developed in websites of the university related to various issues and topics where students give their opinions and participate actively which may develop morals and values among students.

## **STRATEGIES TO USE ICT FOR MAINTAINING ACADEMIC INTEGRITY**

It is the role of teachers, professors and other academic faculty to maintain academic integrity where we find a great contribution of technology. But for these Proper strategies should be followed in incorporating technology to maintain academic integrity. Those can be discussed in following heads.

- **Tweaking of assignment**

Some assignments and assessments can be "tweaked" in a way that makes it especially difficult to cheat. Instead of assigning same pattern of questions, examiners can make a large pool of items and randomly select questions to assign in the exams at different times.

- **University writing centre**

University writing centres provide guidance in academic writing and focus on teaching students how to integrate written resources with their own analysis and conclusions in order to create credible original and innovative academic work. It helps students understand how sources serve their writing, discusses different ways of incorporating different sources into their writing as well as it talks to students about the rhetorical functions of sources.

- **Training students about copyright, plagiarism and time management**

Proper training should be a part of continuous teaching learning process. Efficient Use of technology requires quality training in every aspect of maintaining ethics through learning the process of copyright and time management. This is a process of prevention for plagiarism and other dishonesty. For an illustration, The Rochester Institute of Technology uses a similar approach to help international students acclimate to the American academic environment, offering a copyright/plagiarism class during orientation. Programs like this should help

copyright/plagiarism class during orientation. Programs like this should help minimize cheating.

- **Relevant codes and policies**

It is seen that there is substantial disagreement not only between students and faculty but also among students and among faculties. This leads to variance of understanding which results in unpleasant confrontation among the students and faculties. It is therefore essential that universities develop and enforce

explicit policies with regard to academic dishonesty, including the use of technology. Hence, in orienting materials, student's handbook, course syllabi, and other instructional materials, proper codes and policies should be clearly stated so that expectations can be established and confrontation between students and instructors can be reduced.

- **Design alternative assignment**

If students working together raise concerns about cheating, proactively putting students to work in groups for group projects, collaborative wikis, class blogs, or discussions as alternative methods of assessments offers advantages as well. In addition, some assignments and assessments can be "tweaked" in a way that makes it especially difficult to cheat.

It is also a good idea to incorporate more Web 2.0 assignments such as blogging, social bookmarking, and podcasting in a course. Students become better motivated when contributing their original work, as their personal identity is involved. When their work is broadcast to their classmates and possibly to a wider world, they tend to be more cautious about using someone else's work. **(Berlin Fang, 2015).**

- **Enhancing integrity in culture**

Academic integrity is part of university or educational institution's culture. as honesty can't be trained ,it should be embedded in the implicit function cultural pattern. Students participate in various outreach programs locally and internationally to promote their values. Faculty members are also evaluated by the service they provide to students, the university, and the local community. Through online video conferencing, blogging and other means of social conferencing among universities widens the knowledge and helps in transmission of values among people of different university culture as well as strengthen the ethics and values of people within university which greatly enhance academic integrity.

## **LIMITATIONS OF ICT IN RESPECT OF MAINTAINING ACADEMIC INTEGRITY**

In spite of having so many advantages of incorporation of technology for enhancing academic integrity, there are many limitations of it as it makes a way for academic dishonesty in some respect if it is not maintained properly. Now a day's Students find very easy to get help through the computer technologies for completing assignment or project or research writings. McCabe (as cited in Jones, 2011) found that many students saw the internet as an open forum, and did not feel obligated to cite material found online. In a study to identify cheating perceptions, students and faculty alike believe that it is easier to cheat in an online course than in a traditional lecture course **(Mastin, Peska, & Lily, 2009).**



Despite the avenue of delivery of coursework, academic dishonesty is occurring in higher education, much of which is stemming from the ease of access to information from the increase in the internet and technology. Students frequently use search engines to get adequate amount of information in a very few moment. One of the most commonly used technologies are mobile phones. In the exam hall, students text to the person outside the exam hall for a particular answer and the person outside the exam hall text back to the student. In the other way, students directly can get answers from the internet through mobile phone. Scientific calculators are also helpful for cheating in examination. Wireless earphones also are powerful tools to cheat in the exams

In research works, technology becomes a powerful and most easily used tool for plagiarism and other academic dishonesty. For data collection, researchers can easily collect data from the subject by video conferencing without personally meeting face to face which makes research devoid of the essence of face to face interview. In other way while writing research thesis or other academic writing, the use of internet and computer technology is widely occurring which results in scarcity of original research work in this arena.

## CONCLUSION

When Plagiarism and other types of dishonesty are considered, technology acts as a double edged sword. On one hand it has made plagiarism itself much easier, streamlining the process of finding content to plagiarize and bringing the duplicated material into a new work. On the other hand, it has made plagiarism much easier to detect and prevent. In spite of its many limitations, technology acts as a boon for today's world. Here limitations start from our perception, attitude and act of incorporating it in a destructive way. Hence, it is the need of the hour to recognize the point from where the act of dishonesty starts and integrity ends in itself and to find out the reason for this as well as the most essential thing is to find out the solutions to the causes of academic dishonesty. Most interestingly, starting from detection of academic dishonesty and finding out solutions behind it also requires a well maintained integrity to start with. This can be possible through technology. We should remember, however, that while technologies to detect plagiarism keep improving, students are also finding newer and better ways to cheat. An instructor might focus chiefly on acts of academic dishonesty on the computer only to find that small memory devices and cell phones are being used instead. For example, students can text their answers to peers. Relying solely on technological tools can be risky, hence the need to balance them with other strategies also the need of the hour. Hence, the technology which may be a cause for destroying academic integrity can be a powerful sword for fighting with academic dishonesty and to foster a well maintained value system in academic institutions. For this, as Educators, faculty should be proactive in their approach to students to address academic dishonesty in a fashion that will promote learning and growth with value inculcation which ensures a well maintained academic integrity and the most important thing is to give emphasis in enhancing integrity at individual level with character development which forms the base of our Indian culture.

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