Effectiveness of Information and Communication Technologies in Teaching- Learning Education at Secondary School Level

Summera Khalid
Research Scholar
Department of Commerce & Business Studies,
Al-Falah University
Faridabad-121004, Haryana, India

Dr Mohammad Anwar
Assistant professor,
Glocal School of Business & Commerce
Glocal University
Saharanpur-247121, Uttar Pradesh, India

Abstract

Now days, ICT has become an integral & essential tool of the teaching-learning interaction, to replacing chalkboards with digital whiteboards. A student can use own gadget devices for learning in the classroom. The "flipped classroom" model is found very significant during COVID-19 pandemic worldwide where students watch and take lectures/classes at home using electronic gadgets. ICT is a powerful tool to interact, create, spread, store, and handle the information. Improve and optimisation of information can be done to using information and communications technology tools. It is observed that ICT can develop confidence in students through better learning and teaching methods. It changes our life in all aspects. ICT enhancing the quality of education by helping the achievement of basic skills. The purpose behind this investigation is to breakdown what's going on at secondary school level regarding excellence of education and use of ICT. To inspect educators' observations about what instructing and learning procedures can be improved using ICT. The important contribution of ICT is easy access to learning in the field of education. Specifically, it is observed that the impact of ICT on an enhancement of instructing and learning forms is advanced in the schools that coordinated ICT as an advancement aspect. Achieving this most significant point, a school needs to modernize the technological apparatuses. School needs to modify the teaching methods, the educator's responsibilities, the role of classroom administrative, instructing and learning forms and the communication components.

Keywords: School improvement, information and communication technologies, instructing and learning procedures, educational advancement, excellence.

Introduction

It was observed during the past years, the numerous research and reports had been carried out the potential advantage of information and communication technologies (ICTs) to enlightening the excellence of training. ICT is found as a "significant & important tool for building information societies" (UNESCO 2003). Especially, ICT could give an approach to reconsider

as a main component at the secondary education level. It also reshapes the instructive systems and procedures to promoting quality education at school level.

Also, in European countries, suitable utilisation of ICT at school level education has been considered as an important aspect to improving excellence at secondary level. ICT's utilisation in learning forms via its e-learning activity is scheduled by European countries. The major objective is "to enhance the value of learning by assisting access to assets and services as well as remote exchange and collaboration" (Commission of the European People group 2001).

This study centres to create proper plans and schedule to use this new teaching job. Also, the learners' role when adding ICT in educating and learning forms. ICT can upgrade the eminence of education in a few ways which included, increase in learner stimulation, encouraging the attainment of basic abilities and by upgrading the training of teachers (Haddad &Jurich, 2002).A lot of studies had demonstrated the advantages of ICT to the quality of education (Yusuf, 2005; Al-Ansari, 2006).ICT can possibly innovate, quicken, improve and deepen skills. For instance, self-learning, problem solving, data looking for and examination, and basic speculation just as the capacity to impart, work together, and learn (Yuen et al, 2003). It also assists with upgrading teacher training, inspire (Plomp et al, 2007) and engage students and teachers. It can likewise help relate school experience to work rehearses and make financial feasibility for tomorrow's workers (Davis and Tearle, 1999; Lemke and Coughlin, 1998). Utilization of ICT also develop higher-order thinking skill (HOTS), for example, join forces across time, place and taking care of issues (Bottino, 2003; Bhattacharya and Sharma, 2007; Mason, 2000; Lim and Hang, 2003; Alexander, 1999; Jonassen, 1999). ICT can enhance execution, teaching, learning, administration, and create applicable skills in the disadvantage groups (Bottino, 2003 and Sharma, 2003) as well.

"An effective usage of ICTs in the classroom is associated to positive results, including higher grades, better perspectives towards schools, and better comprehension of theoretical ideas". A. W Bates (1999) states when teaching with innovation, learning results can be determined as far as content, abilities, and values. The role and the viewpoint of teachers have become exceptionally significant. Also, featuring teachers as a critical player in this procedure. Especially, educators can use technology relying upon their observations. It can add to the teaching and the learning procedure. To knowing about what teachers are thinking? What they do? And what they may do? In this way, we can be nearer to recognize with ICT technology in their classroom and relation to their work.

ICTs for Secondary Education

The instruction, schooling, learning, and preparing are the most important part of ICT learning. Though they are various societies. Its entertainers, framework, and techniques like initiation and evaluation had been created. It was observed that youth are taking the more specific exchange of certain monetary and social circumstances from experienced grownups. The equivalent situation is for the primary, secondary, and advanced education. They have various directions particularly on the off chance that it goes to incorporation in the education.

The development of secondary education is the main subject since the last two centuries. Essential progression towards tolerating that school is a direct key to social versatility. In the twentieth century the colleges were turned out to be progressively engaged with social system at second position with 50%. The secondary School turned into a field where instructive played a different critical role. The learners should keep learning on account of their parents' high prospects, as opposed to students' characteristic, inspiration all things considered.

Figure 1-Factors influencing usage of ICT tools (Singh, T.K.R, & Muniandi, K. (2012)

The framework in Figure 2 sums up an outline of elements that are mutually associated. The teachers are eager to cooperate and coordinate with each other about the work and completion of work. The principal didn't make choices among the numerous examples alone but also

referred the ICT committee at secondary education level. The school teachers as well as head are feeling the benefits of ICT as a mutual vision for students. Whoever technical specialists regular working on ICT benefits they can guarantee that the ICT tools are beneficiary for secondary education level.

It is clear that the role of ICTs in secondary education can't be estimated with unadulterated norms of learning results to get readied for national final examination only. The youth generation gets ready for additional learning because ICTs conceivably provides an influential measurement for change. Though it is truth that the way of using potential of ITCs are idle in our societies, economies, and businesses of the schooling content, techniques, and evaluation criteria. Hence the inquiries of educations have a higher possibility to move with the ICT possibilities to implement it properly. It's precisely circumstances that the educational parts are progressively self-ruling. If ICT tools are completely acknowledged in the Secondary school level then simultaneously lot of size of reformation and development has to be carried out for the final examination. The main purpose to implement the ICT tools that the abilities of learning between age 11 and 16 years is the most delicate stage of student's life. This concept of formative psychology and didactics is observed worldwide at the new secondary School level. It's hidden message that the student ought to put resources into learning abilities and perspectives. Driven by inborn inspiration and interest, instead of the pressure on them an enormous subject's space to breeze through a final examination.

ICTs in Secondary Education Level for Teaching

Educator is the core member of the learning procedure. Teacher's training is essential for laying a proper guide towards "learning schools" through "educators". ICT tools are a thoughtful process to activate educator's imagination and to make this instructional practice increasingly adaptable and creative. Teachers must be educated in like manner that they should instruct the same at secondary school level. It is difficult to bring the educator and would-be educators to a new teaching method. Second challenge that the adoption of ICT tools with teachers those are following traditional teaching method for a long time. Escalated teachers want to utilize ICTs in the learning procedure these days. The substitute methods are being supported for the evaluation to choose whether to allow educators to work based on their expected classroom enactment.

The role of ICTs as a learning tool, become an innovative and potential method for the teaching procedures which came into the centre. It's amazing fact that ICT support for teachers has not

been centred on the informative mix of psychological learning tools. It is found that more interest has been paid to WWW-based learning the board frameworks. It is principle resource is the Web-based usefulness to convey the "only for-you" content "just-in-time", and to encourage correspondence between the students. Because of the pervasive nature these frameworks have contributed to Higher-as opposed to secondary education up until this point.

Influencing factors of ICT Teaching in School Level

Classes of secondary school are well organised by a teaching timetable. Therefore, a number of factors can constrain the experimental sessions of the ICT teaching methods (Valcke, Rots, Verbecke &Van Brak, 2007). Factors can identify with various internal and external components. Teachers' education conducted by universities and performed by university's faculties. The factors used for the assessment of ICT teaching are: The new national educational revolution and digital e-learning, teacher's academic knowledge for ICT, curriculum academic practices, readiness and material of learning resources of ICT, ICT skill and academics knowledge of student and teachers', ICT knowledge and aptitude of learners and methods of evaluation.
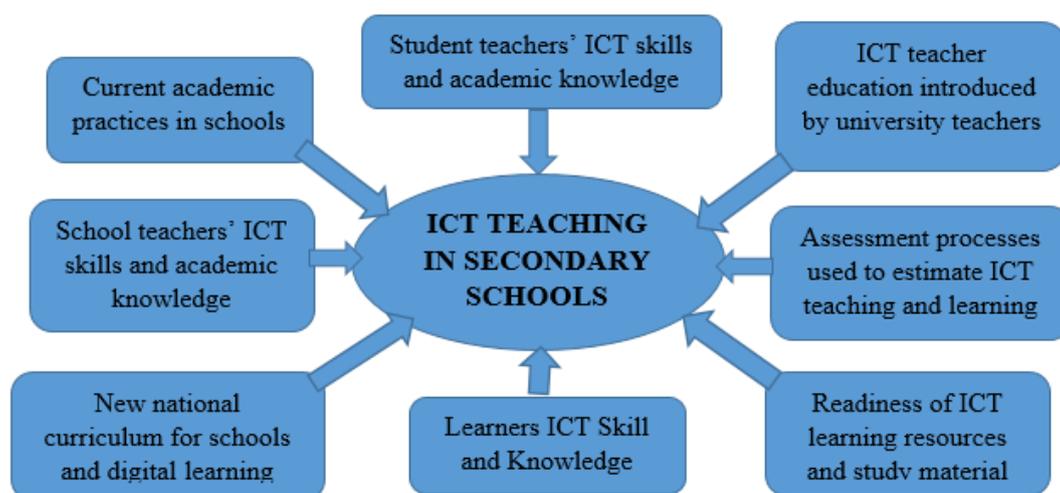

Figure 2. Influencing factors of ICT teaching in secondary school level

ICTs Learning in Secondary School Level

One of the important ideas and benefits about the inquiry "if" and "how" ICTs would participate a function in education is that it demands youngsters to gain aptitude and attitude. "Computer knowledge" was the core alteration knowledge in the mid-90s. Main objectives of ICT are

forward-looking with improvement in master frameworks, reproductions, and audio-visual aid. The significant question showed up on the most proficient method to coordinate ICT capacities with regards to learning in customary didactics. Up until this point, just the content processor, spreadsheet, and database entered the didactic field. Continuous acceptance of the constructivist paradigm of learning permitted professionals to perceive how students may pass on the profoundly individual knowledge process like the exteriorization of ideas and analytical strategies.

Impact of ICT on Teaching and Learning

➢ Utilizing ICT implies that information can be acquired rapidly. Information can give students various perspectives and a more extensive comprehension of issues.

➢ ICT aids the teachers to modify teaching materials to suit the necessities and availability levels of their students.

➢ It acts as a motivating force for students to learn. The technology can be operational in connecting with them in their homework.

➢ ICT assists with making learning more exciting. It helps in expanding levels of enthusiasm, for instance using shading, animation and sound.

➢ ICT encourages students to work at their own pace and level. ICT adds to the advancement of a personalised or gradually learning plan.

➢ ICT assists students' centred learning and can boost students to assume responsibility for their learning.

➢ Effective utilization of ICT, particularly in individual, pair and gathering work with PCs, can lead to enhanced classroom self-control and better administration of learning.

Media Significance in ICT Education: Research Outlooks

An audit of study on educational media, and combination of digital education media, have officially recognized to numerous zones of study. Educational media and digital media are developed in various periods, various epistemological, methodological, and educational presumptions. It is found that the study has been focused on cinematographic media in the earliest starting point. However, other technologies are developed for improvement and especially, PCs presence in the classrooms. Hence new research of these technologies had been carried out for effectiveness and influences to schools for utilization.

Inspired by the arrangement laid out by Clark and Sugrue (1988) and further modifications done by Zone (2005), Cuban (2001), Ringstaff and Kelly (2002), have introduced the next plan

where initially they attempt to make a system through which they can arrange many issues and concerns connected to the majority of the research on cinematography media and computerised education and, besides, to arrange the research they have carried out following points:

(1) **Workout on the educational media itself, foremost plan investigation and media assessment Including programming, equipment, and courseware:** in this group, they could include the investigation of quantitative pointers that depict the circumstance and utilization of PCs in educational frameworks (Euridyce 2001; OECD 2003; Twinning 2002).

(2) **Studies on media and learning in education:** study of this subject starts in behaviour and advance intellectual situations from perspective of a micro-psychological. The communication of educational media and the conceivable modulator impacts is considered to advance learning. They have featured those investigations specifically where consequence of intellectual technologies on human being thinking and learning (Salomon, Perkins, and Globerson 1992). The significance of the social surroundings in psychological change (Chia and Duthie 1993) is examined. This point of view, several research models had been created. The connection of these models between media traits, techniques of teaching, learning assignments, and student's intellectual results were discovered.

(3) **Studies on Internet networks**: The revolutionary development in internet has provided new educational research points of view and has focused on new concerns and approaches. At this view point, they have distinguished significant research lines as mentioned below:

    a. Internet as a learning medium have been classified wide regions in three categories: As an apparatus to implement training undertakings as a balancing act at schools, as an approach to help individual contact and along these lines communication among individuals, and as an asset to enlarge access to content and services (Sangrà 2001).

    b. **Two-way learning:** in spite of, a practically traditional methodology (Lave 1988; Lave and Wenger 1991), the connections between two-way learning and ICT have uncovered more grounded potential outcomes. Some examination study has concentrated to how students organize themselves to develop two-way learning in a virtual situation and how this condition ought to be better planned (Harasim et al. 1995; Guitert et al. 2003).

    c. **Virtual networks of Learning:** further research point has concentrated on how ICT can assist with building real learning networks on the internet (Forces 1997; Palloff and Pratt 1999; Renninger and Shumar 2002). Additionally, Research has inspected how these networks can form as a practice network (Wenger 1998) and an incredible asset

to accomplish individual and expert objectives, and how it adds to new information building (Landow 1997; Laurillard 2002).

ICTs and Excellence of Education

It is given that rise and effective advancement of the advancing societies is unthinkable without enlightening the excellence of people education. Thus, we can enhance the excellence of society by the education. Without basic formal meaning of term 'excellence' in the education, that is conceivable to incorporate such capacities of a character as below:

> ➢ Staying informed to the cutting-edge thoughts and disclosures of science in the regions furthermore, innovation;
> ➢ Obtaining aptitudes required by the most recent advances and the market;
> ➢ Strengthening his/her skill through self-training

In this way, logical and innovative information and self-supporting expertise as a result of excellence education should offer an effective contribution of a person in the advancement of the developing our societies.

Important and adequate circumstances may be distinguished in the development of enhancing the education excellence that permits to meet this significant last goal of the education. The essential circumstances would incorporate such educational segments as below:

> ➢ Well managed classrooms & auditoriums;
> ➢ Profoundly proficient administration department at the educational institutions and Universities;
> ➢ Exceptionally well qualified educating and specialized faculties;
> ➢ The quality textbook and expert support & writing make easy to access and simple for students and teachers, just to make as Modern teaching aids and additional data.

Figure 3. ICT tools

The exceptional functions of ICTs to improve the education quality depend on its capacity and adequately encourage the satisfaction of important and adequate conditions for accepting quality education. ICT's modern level enhancement considerably widens prospects accessible to students and teachers for accessing informative and proficient data; improve the management efficiency & operational capacity at desired educational amenities and, in general the educational framework; encourages the coordination of data informative frameworks into the word system; extensively aids getting to global data assets in the regions of education, science and culture.

Knowledge and Skills Needed to Use ICT Effectively

The instructor teachers should and ought to have adequate information and aptitudes to utilize ICT in conveying a lesson. They have to build up their value-based systems to satisfy the need and demands of the learner. It requests proficient improvement of teacher educator.

ICT professional development incorporates:

- Value-based methodologies

- Access to innovation

- Time and backing

- progressing advancement

- Training through little groups

- Assortment of choices

Methodology

Secondary source of data is collected for the purpose of the study like Articles, research papers, Journals, Thesis, University News, opinion of expert and websites etc. Descriptive Analytic method is used for this research study.

ICT as a Change Agent for Education

When seeing in the present widespread dispersion and utilization of ICT in present-day societies, especially by the young generation so-called digital generation and then it ought to be certain that ICT can influence the learning process today and so on. ICT tools are conceivably offering educational opportunities with introduction to faculties having a place

with millennial age the circumstance changed a bit. The more youthful generation are utilized to computers and think that it's simpler to create content utilizing digital technologies. Also, there are a number of programming applications made reasonable to create e-content for teaching learning. Adding equipment, such as, powerful desktop and laptops has become more affordable. And a large number of the youthful faculties, have completed their education in outside nations know about ICT based teaching learning.

UGC Spotlights on training teachers in ICT, Web based teaching Devices:

The University Grants Commission (UGC), in its new academic rules for schools and colleges has highlighted on training teachers in ICT. The UGC's rules came on April 29 to proceed with the educational procedure in colleges where the teaching learning procedure have been severely upset because of lockdown that has been forced in the nation to contain the spread of COVID-19.The college teachers ought to be trained as they complete about 25% of the course through online teaching and 75% course through classroom teaching. Among all recommendations which incorporate academic calendar, examination forms and so on. The UGC has said that faculty must be sufficiently trained to utilise the ICT and online technique teaching tools.

Financing Challenges of ICT Use

Probably the top most challenge of ICT use is offsetting its educational objectives along with financial real factors. Enormous capital reserve is required for ICTs use in education programs. Developing nations must be judicious settling on choices about what type of models of ICT use will be acquired with aware of keeping up economies of scale. At last, it is an issue in ICT use of whether the worth included balances the expenditure, comparative with the price choices. Coming up next are the prospective wellsprings of cash and assets required for the ICT programs:

- Awards
- community grants
- Events for private gifts and reserve raising
- Network support (for example lease free structure), and Enrolment charges.
- Income can earn from the centre business of availability, PC directly used by the clients, and office administrations (copying, checking, varying media helps.
- Income can likewise earn from auxiliary activities like business administration's (word-handling, spreadsheets, budget-planning, printing, and gathering administrations),
- Educational services (like distance learning, instructional classes) network services (meeting rooms, get-togethers, nearby data, settlements from vagrant labourers), telecommuting and counselling, particular activities (telemedicine), and sales (stamps, refreshments, and so on.).

Conclusion

ICT is as of nowadays a strong factor in the unbeaten improvement of education system. Secondary School level education is play a decisive phase of life, in any case; study and learning at secondary level age have the mainly potent effect to framing new levels from the information network. It means that school level establishments require turning into "Learning Associations". This study research paper goes more inside and outside of new ways techniques and strategies at the educational school level and accomplishes the continuous learning progress to the new age's contribution to the society. ICT is one of the main considerations for creating fast developments in our general public and it is able to transform the idea of education for the role of students and teachers in the school level teaching-learning process. It assists with persuading the students by making a rich learning condition by giving new chances to the two teachers and students. These open doors can affect students' scholastic execution and

instructive accomplishment. Similarly, more extensive accessibility of instructive practice and instructive projects shared through ICT, can improve the range of the best education framework in our secondary school level.

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