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E-Governance in education: Development, challenges and future directions

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Abstract
21st century is considered as the century of information technology. It becomes an integral part of life of the people. With the advancement of technology, the role of governance has been increased in the sphere of educational institutions. Education is a process of getting or acquiring knowledge as formal or non-formal way which not only enhances wisdom and skill of the people but helps also in socio-economic transformation in the society. It is governance in an institution which has responsibility to make institutional services easily available and accessible for the stakeholders. In order to maintain objectivity, efficiency and effectiveness in the process of educational administration, role of e-governance is very vital. Over the few years, technology becomes an integral part of the governance. With the help of technology, governance helps in smooth and proper functioning of the institutional process by enhancing the active engagement of stakeholders. e-Governance facilitates the administrators as maintaining transparency and objectivity in the educational process to achieve its prime objective i.e., making e-governance services accessible to everyone irrespective of its caste, creed, gender, religion, language, region, ethnicity, socio-economic status etc. Thus, present paper focuses on concept of e-governance; need of e-governance; need of e-governance in education; development of e-governance in education (At national and international level); challenges to the e-governance in education; and future directions. This paper has utmost implication in education to understand the development of e-governance in education, to find out the challenges to the e-governance in Indian educational landscape, and to explore the future direction of it.

Keywords: E-Governance, education, region

Introduction
21st century is considered as the century of information technology. With the advancement of information technology, the role of governance in the sphere of education has been increased. Education is a process of getting or acquiring knowledge as formal or non-formal way which not only enhances wisdom and skill of the people but helps also in socio-economic transformation into the society. It is governance in an institution which has responsibility to make institutional services easily accessible to the stakeholders. In order to maintain objectivity, efficiency and effectiveness (Levi-Faur, 2012) [10] in the process of educational administration, role of governance is very vital. Over the few years, technology becomes an integral part of the governance. With the help of technology, governance helps in smooth and proper functioning of the institution process by enhancing the active engagement of stakeholders.

Many countries in world have adopted e-governance in their different spheres and education system as well. It is widely accepted fact that e-governance facilitates the institution by many ways whether it is the matter of improving quality in education or enhancing accessibility of the stakeholders. In order to practicing objectivity in the process of administration, role of e-governance is very crucial in this regard. To create an inducive environment in the region of educational settings to the learners for expanding their critical and logical thinking, role of e-governance is unbelievable. Further, it is useful to the learners as providing opportunity for doing frontline researches and innovations by offering a better teaching learning space within the premises of educational institution. As recognising the importance of e-governance, government of India launched it into different fields including educational setup.

E-governance initiates are considered as panacea for all disease relating to different sphere of life i.e., defence, agriculture, administration etc. including education. It has been launched indifferent countries in the world and India as well. There are many benefits of e-governance in the sphere of education, but improving transparency and objectivity in administration process is the prime benefit of it.

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Concept of e-Governance

Governance is considered as a process through which an institution/organization is run smoothly and properly (Delgado, 2012) [5]. When, in the sphere of governance information and communication technology is used, it (governance) is treated as e-governance. e-Governance is conceived as using information and communication technology for delivering government's services, exchanging of information between government-to-citizens, government-to-business, government-to-government (Agangiba & Agangiba, 2013) [1]. According to Izhar–ud-Din *et al*. (2017) [24], e-governance is accepted as a medium in which internet and world wide web (WWW) are used to the transfer of information and delivery of services from the government to citizens. It is also known as electronic governance (Atta- Ullah *et al*., 2021) [23].

E-Governance is unification of information and communication technology in all actions to augment the potential of the government's services to satisfy the needs of common people. Thus, e-governance is understood as the delivery of government services, exchange of information, transactions, integration of previously existing services and information to the public through using electronic means. The main function of e-governance is to enhance the efficiency and effectiveness of the government's services, and also increase the level of outreach to the stakeholders into different public or private sectors' services (Ilyas, 2016) [8].

Need of e-Governance

It is well known fact that India is a land of diversity. This diversity can be seen in terms of culture, language, geography, and economic and social condition of the people. There are many people in this country who are considered as socio- economic disadvantage section. In which rural along with urban poor, women especially in rural areas, street children, people that belong to historically disadvantaged castes and people living in less developed areas are included. These sections have become even more marginalised in respect of economic and social condition as well (Dash & Chandrshekhar, 2007) [4]. The people that are not able to access various welfare programmes launched by government come from these sections. Main reason that the government is not able to reach his door due to many obstacles. But it is firm determination of the government to address these divides. In this regard, government has been launched various programme to eliminate/ minimise these social and economic divides. But effective implementation of various economic and social programme for these sections of society has proved as an elusive goal.

In these critical situation, e-governance has come as a ray of hope in front of the government. E-governance maybe helpful in promoting these welfare schemes by improving the efficiency, accountability and transparency (Kumar, 2012) [9] of different operations, and by encouraging people engagement in various development programme. As recognising the role of e-governance as providing an excellent opportunity for improving the governance, government of many countries in the world initiated different e-governance programmes. It is considered as trigger for introducing various administrative reforms. These changes could not only go a long way in improving the quality of life of these sections of the society, but also could actually provide them more equitable access to economic, social and educational opportunities that ever before. In this context, e- governance can be used as a strategic tool for transforming and improving the quality of services that are provided by government to its citizen.

Need of e-Governance in Education

It is world accepted perspective that education is the right of every individual regardless his differences i.e., caste, creeds, gender, ethnicity etc. It is education which enables an individual not only to think critically and rationally on different issues relating to social, economic, development etc. but also to transmit knowledge or fostering skill and character trait into him. According to Nelson Mandela (2008) [12] 'Education is the most powerful weapon which you can use to change the world'. Some academicians suggest that if a government wants to use its population as its full expertise in order to use natural resources as proper manner. Government will have to deliver education each and every native's door step. Because education has ability to prepare the masses as needs and expectations of a society/country i.e., professional, vocational and occupational.

It can be seen that government is trying its best to enhance the accessibility to education to common people and to deliver it to every person's door step. In this regard a number of steps have been taken not only to make education accessible for everyone but also to improve the quality of education. Some of those steps have been successful and some not. Despite all the planning, efforts and money spent, somehow accessibility to education has been achieved but quality of education has declined over the years. There are many reasons behind it i.e., lack of proper planning, implementation, monitoring etc. One of them is lack of proper using of modern technology. Because of which transparency, efficiency and effectiveness, accountability (Henard & Mitterle, 2010) [7] is not maintained properly in governments' operations. As a result, the condition of education is radically low.

It is e-governance (i.e., ICT) that not only change our relations with the stakeholders in the sphere of educational setup and how we do things but it also changes how we think and carry on academic productive activities, and at the same time they develop our mental capacity by proving a conducive environment to teaching-learning (Churchill, 2006) [3]. If government wants to make education more accessible to everyone in real sense. Government should incorporate information and communication technology (ICT) in the sphere of governance in education so as transparency and accountability (Paul, 2007) [16] could be maintained in its operations. E-Governance can be helpful in this regard for achieving the goal of efficient and effective administration, and to overcome the challenges in the way of worthy education. In order to expand geographical reach, reduce cultural inertia, linguistic and political barriers relating to education, role of e-governance is vital.

Everyone has right to get free and compulsory education (Maithreyi & Sriprakash, 2018) [11]. It is education that inspires people to begin with life as they find it and make it better. Government is trying its best to make education available, accessible, and affordable for all. Regardless its strong commitment, government is not able to offer quality education to everyone. E-Governance in this regard can be quite helpful for achieving the goals relating to provide quality education to all.

Development of e-Governance in Education
Today, information technology has become an integral part of life of the people in the world. Information technology is used as a tool to make government and its agency more responsive, efficient and transparent towards the society. As a result, many countries in the world have initiated e-governance programmes i.e., USA, US, New Zealand etc. As recognising the importance of technology in the sphere of governance, some e-governance programs have initiated by these countries like 'expanding electronic government' was launched in 2001 by government of USA, 'e-government strategy' initiated in 2001 by New Zealand's government, and 'e-government: A strategic framework for public services in the information age' was initiated in 2002 by Government of United Kingdom.

Many e-governance initiatives have been initiated by government of different countries in the sphere of various sectors of lives i.e., education, defence, healthcare, tourism etc. Some examples of this regard as e-tourism, e-culture and so on.

India is included in list of those countries which is considered as an early adopter of e-governance. e-governance in India originated during seventies with focus on in house government in the sphere of defence, economic monitoring, planning, census etc. With advent of world wide web(www), striking development were witnessed in information technology sector. As knowing the increasing importance of e-governance, government of India established the 'department of electronics' in 1970. Another step taken towards e-governance as establishment of 'national informatics centre' in 1977 which brought information and communication in the limelight. It is considered as a major step of government of India towards e-governance (Singh, 2013) [18]. However, e-governance program in India gained prominence with the launch of NICNET in 1987 satellite-based computer network nationwide (Mitra, 2012) [13]. In the ensuing years, with ongoing computers, tele connectivity, and internet connectivity came a large of e-governance initiative both the central and state level. While recognising information technology as a frontier area of knowledge, it focused on utilizing it as an enabling tool for assimilating and processing all other spheres of knowledge.

National e-Governance Plan (NeGP) which is considered as a great step towards e-governance program launched by government of India in 2006 (Kumar & Bhanti, 2012; S, 2019) [2]. The main vision of NeGP is to make all government services accessible to the common man in his locality, through common service delivery outlets and ensure efficiency, transparency & reliability of such services at affordable costs to reduce the basic needs of the common man. And the main mission of the NeGP to focus on education sector that provide greater opportunities of success to higher education with equity to all eligible persons in general and particularly to the vulnerable section. NeGP program can be extended to various existing institutions, to supplement efforts aimed at remaining regional or other imbalances that exit at present. NeGP can initiate policies and programs for strengthening research and innovation and encourage private or public institution to engage in searching the frontier of knowledge. NeGP can promote the quality of education by investing infrastructure and facility, promoting academic reforms, improving governance and institutional restructuring. Further, there is a programme as Digital India has been launched to transform India as digitally empowered and knowledge economy in July 2015. Subsequently department of education under Ministry of Human Resource Development has administered a programme as national mission on education through information and communication technology (NMEICT) to leverage the potential of ICT into making the best quality contents, and also to make these contents easily accessible to all learners at free of cost. National Education Policy in 2020 also stressed upon employing educational technology in the region of education to promote quality education (NEP, 2020).

Over the few years, there are different e-governance initiatives in the sphere of education have been launched by Govt. of India i.e., SWAYAM, National Academic Depository, National Digital Library of India, Know Your College etc. Thus, government of India in this regard has done a lot of works (Srivastava & Srivastava, 2022) [20].

Challenges to e-Governance in Education
In the way of implementing e-governance in the sphere of education system in India, there are several hurdles. These hurdles have identified and addressed as following headings: *Low literacy rate* (Gogoi, 2020): The literacy rate of India is considered as low literacy rate compared to other countries in the world. Most of people in India are illiterate or only literate. Thus, they are not able to understand the importance/ complexity of e-governance services. In this way, low literacy rate plays as a hurdle in using e-governance initiatives properly to stakeholders in the sphere of education.

Diversity in India: India is considered as a land of diversity. This diversity reflects as culture difference, socio-economic condition (Thomson *et al.*, 2014) [22], and geographical diversity. Thus, people of India come from different backgrounds in terms of speaking language. In most of educational institutions medium of teaching is either Hindi or local language rarely in English. Therefore, students face language relating problems while using e-governance services. But, over the few years, services of e-governance have been available in different regional languages too. Thus, it does not create much problems in using e-governance services.

Lack of trust on technology: Most of people in education system are more or less aware to handle the computer/electronic gadgets. Even if the system of institution works properly, and they are in position to use the system. Often, they don't prefer to use technology because they don't trust in the outcome of the technological solution. They think that their security and privacy would not be longer maintained due to using technology. Consequently, lack of trust on technology emerges as an obstacle in the way of using e-governance services in the premises of education.

Lack of integration among different departments: In order to success of any program, integration among different departments plays a vital role. It is well known situation for India that integration among various departments is not more focused in terms of implementing not only e-governance initiatives but also in other initiatives. As a result, it can be seen as those information/data are considered more important to one department, not treated as same way to another department. Thus, possibility of being

successful of any project is reduced. So, it becomes important to maintain integration among different departments so as any project could be implemented successfully.

Limited financial resources: India is counted as a country where per capita income is low, and India spends very low amount around 3% of its gross development product (GDP) to the betterment of its education system compared to developed country in the world. Thus, education system always faces problems relating to dearth of finance. Intuition has not enough financial assistant to make e-governance services easily accessible to its stakeholders. Therefore, dearth of financial resources emerges as hurdles in the way of implementing e-governance in the sphere of education.

Lack of technological infrastructure: It is an important aspect in the way of proper implementation of e-governance in education. Most of intuitions of India, have not maintain such type technological infrastructure where e-governance services can be performed smoothly, and functioned properly. Some institution which maintains such type of facility, they are less in numbers, and mostly located in metropolitan cities. There are various reasons behind it like lack of enough fund, lack of will power among stakeholders, lack of skilled manpower relating to technology, lack of interoperability functions in e-governance services etc. Thus, nonexistence of technological infrastructure in India is considered as a great hurdle in this regard.

Lack of Political will (Thabit & Jasim, 2019) [21]: India is a democratic country. All executives power is exercised by elected representatives. It is seen that most of deeds are done by them to get political power not to welfare of the common people. Education has always been the second priority for them. Whether it is government of UPA or NDA, education has been given less important compared to other area. Thus, it can be seen how the government is indifferent towards education.

Digital divide: Digital divide is a major concern in the way of implementing e-governance services in the sphere of education. Digital divide is considered as the gap between those who have, and do not have access equally to modern technology (Singh, 2010) [17]. Thus, due to it e-governance is not able to achieve its desired goal. If the services of e-governance have to be made easily accessible, affordable to all, and quality and relevancy of these services have to be improved to the people of last corner of the society. Government with its best efforts will have to try to bridge the digital divide into the society/country.

Future Directions
With the great scope of e-governance in education, it is said that it has bright and prosperous future. Various e-governance initiatives have been launched by government of India in which some of them are considered as successful. With the advancement of e-governance services, the responsibility of Indian government has increased. In order to cater the future responsibility towards e-governance services making them more accessible and affordable to the general people. Thus, Indian government has set some vision and objectives to achieve it properly which reflects in as the twelfth five-year plan (2012-2017). Some key points of this plan are as follows:
a) To deliver all government services in electronic mode so as to make the government process transparent,

citizen centric, efficient and easily accessible.
b) To break information silos and create shareable resources for all government entities
c) To deliver both information and transactional government services over mobiles and promote innovation in mobile governance.
d) To build shared service platforms to accelerate the adoption of e-governance project implementation
e) To strengthen and improve sustainability of the existing projects through innovative business models and through continuous infusion of advanced technology
f) To create an ecosystem that promote innovation in ICT for governance and for applications that can benefit the citizens.

Apart from these visions, government of India has set some targets to provide internet services to the door step of every citizen. Thus, there is need to take some steps regarding fulfil the notion of e-governance project which are as under:
a) E-governance framework across the nation enough bandwidth to service a population of one billion.
b) Connectivity framework for making the services reaches rural areas of the country or development of alternative means of services such as e-governance kiosks in regional language.
c) National citizens database which is the primary unit of data for all governance vertical and horizontal applications across the state and central governments.
d) A secure delivery framework by means of virtual private network connecting across the state and central government departments.
e) Data centres in the state and central government to handle the departmental workflow automation, collaboration, interaction, exchange of information with automation.

Conclusion
E-governance is considered as a strategic tool in order to bring revolution in the sphere of education. It helps in making the educational services more accessible and affordable to the common people, opening new ways of learning and dissemination of information which promotes collaborative and cooperative leaning among the learners. Further, in order to control over corruption in education system, maintain transparency in educational process, the role of e-governance is unbelievable. Thus, education has become more responsive towards society in terms of its needs and expectations. With the help of e-governance initiatives more students would be able to access, and afford quality education at minimum cost. If it occurs, students are able not only to enhance their critical and rational thinking regarding present education system but develop also their knowledge and skills. As a result, they are capable to earn their living and to maintain a respectable life in society. Government of India in this regard needs to take a harsh step to fulfil the visions and objectives of twelfth five years plan relating to governance programs. So as, the dream of right to quality education to everyone could be achieved. Whatever huddles come in this way can be easily sorted out just need to fulfill the targets which have been set by the government of India during the twelfth five plan.

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