Role of Modern Alternative Digital Tools in Education: Impacts on Educational Leadership

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Abstract

At the start of the twenty-first centenary, latest teaching technologies established for effective communication and implementation of new strategies according to technology. Instructive technologies are of any type of tools or assets that help in classroom directions. These tools can be computers, electronic equipment's, printers, scanners and some more teaching tools used to support learning process. Other Assets that may be used in classroom are supply of electricity, facility of internet and teaching program in soft form like software's. Recent technologies attracted the attentiveness of educational leaders being they exposed pupil to their technological influences learning procedure and approach. Applying latest technology in present day schoolrooms is a dare for educational leaders because students as well as teachers have less understanding about this all. Educational leaders are more involved in their role as technology leader's deep involvement for the application of technology in the schoolrooms. Educational leadership the use the technology for managerial motive knows very well the importance of technology use in educational field. Deep engagement involves specific technological leadership implementation which give ability, help and assets to teachers in the area of application. Teachers have implemented unique teaching skills in the form of modern technology which have come into for participatory digital leadership which gives professionals evolution and reform of already present teaching exercises. Public and institutional

administrative principals know very well, a necessary piece of in the education system is the change in the teaching and literacy of students would improve including the delivery of creative apparatus for teachers and pupil.

Keywords: Technological Leadership, Digital Leadership, Transformational Leadership, Future of Education

Introduction

Recently, researchers have identified a new type of leadership among managers in the United States, Taiwan, Canada, and Malaysia known as technological leadership. The concept emerged in the 1980s with the introduction of Information and Communication Technology in schools. In short, studies to assess the collision between Information and Communication Technology used in teaching for betterment of education. These studies have highlighted the need to train managers of the schools as digital leaders in effectively integrating Information and Communication Technology into the classroom. In 2001, ISTE (International Society for Technology in Education in America), developed innovative basics for managers known as NETS-A (National Education Technology Standards for Administrators). Its purpose was to give directions and guidance for administrators to become effective technology leaders. Technology leadership academics have since been established in every state in the United States (Chang, Chin & Hsu, 2008).

On the behalf of previous studies, there are a lot of factors highlighted that influence on the applying technologies at school level. Among them, managerial staff is one of the basic elements influencing the success of technology application. School leaders have a big answerability to initiate & apply in school to alter by employ Information and Communication Technology, thereby facilitating difficult recommendation on the combining of Information and Communication Technology in education and schooling. The role of manager's is crucial in helping Information and Communication Technology combining, most of the Information and Communication Technology writings highlights on the functions of manager's participation and the actual technological leadership skills include in the manager's basic role and a manager must play a technology educational leader role to overlook. This research void is quite odd as a lot of writings that shows schoolroom alertness, betterment & alteration for school educational leadership that plays a significant part in producing improved alteration in educational institutions (Schiller, 2003).

Digital leadership connected to application of modern technological equipment's is called modern leadership. Leadership related to digitalization is the cunning of commanding, usage example for others people that are attached with different institutions related to schools, they can make a great change in society as well as in schools and they are building blocks of environment and basic studies and change regarding future academic success and relationships with parents, school staff and others (Karakose, 2021; Agustina, 2020).

Dynamic mindsets are required to bring this whole change in skills and behavior for transformation or improvement school environment by the application of technology. The concept of digital leadership is based on integration of technology, inspiration and style of leading it. The strategy that a school leadership required to promote digital leadership is the improvement and application in technology integration, it will really improve the students as well as teachers' performance at school level. Leadership related to digitalization is significant, appropriate, speedy, pyramid, oriented, cooperative and brainchild techniques

(Tian, 2020; Oberer & Erkollar, 2018).
The applications of digital instruments in whole education administration will be attained through digital leadership. By a complete designing procedure in the eye of the school demand for technology one can achieve the goal of digitalization. According to, ISTE-A (International Society for Technology in Education) norms there are five kinds of digital leadership, first inventive leadership, education culture leadership, professional practice leadership, systems enhancement leadership and digital ethnic group. Benefits of this kind of digital leadership, it is necessary the combining of e-technologies in educational institutions for improvement, in this way education will be easy and more approachable in all manners. Teaching method quality is also very big aspect for a prosperous teaching procedure to enhance educational achievements and goals regarding e-technology. To prosperous applications of exploring e-leadership as well as e-technology in educational institutions, digital leaders must take extra trainings with teaching skills and requirements of future (Cunningham, 2022; Al Ajmi, 2022).

Literature Review
Past research data shows various responses for the e-technology combining issues faced by the leaders of educational institutions specially in different secondary schools in the entire world. Past research work has concentrated on various view points on e-technology and its implementation, its impact on educational institutions structures, and the reason of its failure and progress in the schoolroom culture. The main postulates affecting as a whole for e-technology application is to understand the role of technology at the core. Major problem with technology application for school educational leaders is to include the educators in the procedure of alteration. While technology used in education holds guarantee for enhancing student learning, the risks of inclusion are difficult to disregard. (Norton & Wiburg, 2003) state that, 'To lead the way for speed up and unpredictability in the age of this modernization digital leaders must be trained for future'.
Ongoing collaboration with high school technology integration initiatives level, I witnessed the use of a significant amount of new technological resources inappropriate in class. Technology has become a new craze. Initially, the new pedagogical devices were using by educators and pupils that motivated through their newness, these devices were using by the absence of technology these are just manual devices like charts. (Gura & Percy, 2006) declared, the excess amounts of underutilized computer or electronic instruments in schoolrooms explains there is no proper practices are done in schoolrooms by pupils to overcome their difficulties.at least part of this to what extent a consequence of the teacher's misunderstanding that is difficulties. Students are deprived due to less or no usage of computer practically, their precious time is wasting, actually pupils are disservice if they are not provided with information and relevant materials.
Use of the technology continued until operational problems were encountered as a result end of use and permanent storage. Other techniques are not used optimally and become a replacement tool that does not increase the educational procedure. In this way, e-technology application now working as a big field in educational processes that needs to be analyzed what is the procedure, contributors and school leaders most helpful in growing alteration methodology improve education regarding to technology (Shomirzayev, 2020).

Since 1990-2000, primarily responsibility of teachers was to integration pedagogical techniques aside from knowing its important role in the development of educational leaders as a whole procedure (Brockmeier, 2005). Application of technological process be in need of over and above addition of technical tricks to the lessons, but changes in lesson planning, preparation and application. School leaders must be leaders of change. (Complete, 2011) says, 'effectiveness in new leader can be judged by who actively take part as greenhorn to support the improvement of educational process'. The leader's role in the process of applying the advanced e-technology efforts require the involvement of stakeholders where hurdles and requirements arise and solved in cooperation with frontline leader.

Educational leaders need to better prepare the leaders in advance for future demand. Technology leadership at school level is traditionally explained in these three areas. The *1st* area is exploring how technologies now in sense of digitalization being used for delivering new content as compared to the old concept executive education. The *2nd* is the province should be focused on training-based approaches to school managers as well as leaders to make the proper use of digitalized or e-technology. The *3rd* area emphasized for the preparation of school managers to become good e-technology leaders of future. As for the third area, which is the most important, there is still little research or preparation and the most effective among all the 3 (McLeod, 2011).

In the same sense, it is not only the leader who must have the ability and proficiency of e-tech inclusion in schools, but also it is equal responsibility of present teachers of the institutions who promote technology in the same sense. The educators as pioneer of education department must be clearly accept the application of e-technology in education. (Ndeto Ivala & Basitere, 2017) shows that using e-tech can develop in depth and purposeful collaborations education. Results discreetly contribute to the excellent performance and finesse of the experienced technology. Additionally, a study by (Hero, 2019) found that teachers demonstrate competence in the implementation of technology into schoolrooms learning and see it as educational initiative in the educational mirror. Thus, the conceptual framework of educational leadership in terms of technology awareness can be illustrated as following key points:

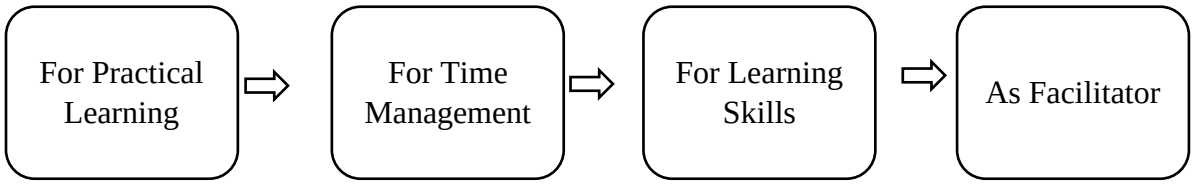

Figure: 1. The Block Diagram of Usage of Technology on Educational Leadership

Material and Methods

The materials and method used in this study are elaborated in this section that are connected to basic tools and ways that are practically applied statistically and data gathering method under the research objectives of study.

Nature of Research

The nature of study of this research was quantitative approach and survey method of research was used by using dichotomous approach (Yes / No) to complete the essential needs of the research study. The major goal of this research study was to open the concept of the use of alternative modern tools in education to become digital leader of future in education.

Population

The population of this research study was the IT Teachers of public secondary schools of Tehsil Jhang, both male and female. Sample was drawn from these IT Teachers of the institutions by following given procedure as under.

Sample and Sampling Technique

There was total 115 secondary schools in Tehsil Jhang in which 62 schools were male gender and 53 schools were of female gender. By percentage there were 54% schools are of male gender while 46% were of female. According to this percentage total 25 IT Teachers were choose in which 14 IT Teachers were male and 11 IT Teachers were female. Sample was collected by random sampling technique.

Research Instruments

To see the use of modern alternative tools in education and school leadership survey was selected as a tool or instrument by the researcher in the form of dichotomous (Yes / No) type questionnaire. These questions were closed-ended. A deep study was conducted for the validation of the instrument. It consisted of 25 IT Teachers (male and female) of secondary schools of Tehsil Jhang. The researcher administered the questionnaire to the heads of secondary schools personally to get feedback. There were 10 questions for each IT Teacher to know the use of modern alternative tools in education. Furthermore, the IT Teachers of the selected institutions were asked structured questions regarding the impact of technology on their school performance.

Analysis of Data

The collected data through a questionnaire was tabulated in the form of frequency against each response with the help of SPSS. For statistical treatment simple percentage Independent Samples t-Test technique was applied to analyze and interpret the collected data.

Results and Discussion

The collected data analyzed by several statistical methods and instruments have been given in this portion to find the answers to research questions and reach the conclusion of this research study.

Table 1 Gender-wise distribution of sample taken from the IT Teachers of secondary schools

Variable	Category	Frequency	Percentage %
Gender	Male	14	56%
	Female	11	44%
	Total	25	100%

Table 1 shows the sample taken for this study. The whole sample consisted of male and female IT Teachers of different public secondary schools. They are 25 in number, 14 male and 11 female IT Teachers of the institutions.

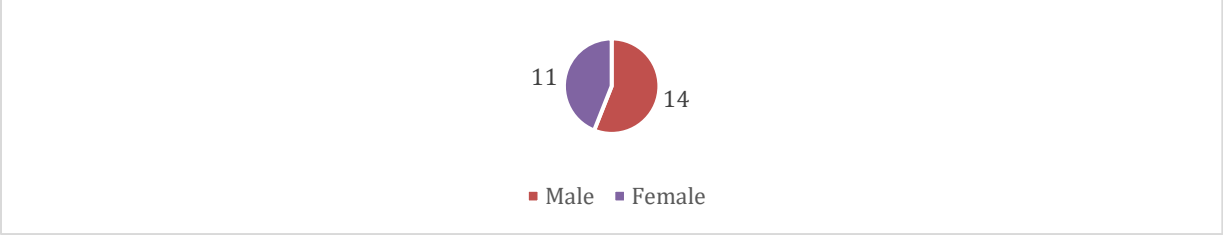

Figure: 2. Pie Graph Representation of Gender-wise distribution of sample taken from the IT Teachers of secondary schools

Table 2 Summary of T-test of the Study from the Sample Taken

Responses	f	t-value	f-value	Sig
1. Basic digital tools	YES	18	.948	4.003
.057				
Facility in your institution	NO	07		
2. Modern alternative	YES	21	-1.359	8.718
.007				
tools availability	NO	04		
in your institution				
3. Number of IT	YES	22	-.820	2.863
.104				
experts in school is only	NO	03		
one				
4. Internet Availability	YES	12	-.561	.056 .814
In your school	NO	13		
5. All computers in the	YES	25	-4.76	.669 .422
lab is functional	NO	10		

6. Limited number of digital equipment in school	YES	21	.813	3.022	.096	
	NO	4				
7. Modern digital tools help the students in study and research	YES	23	-.171	.117	.736	
	NO	02				
8. Digital tools also helpful for teachers	YES	24	.882	3.654	.068	
	NO	01				
9. Old tools will replace by new digital tools soon	YES	24	-1.135	6.360	.019	
	NO	01				
10. Old teaching tools are time consuming	YES	21	1.813	3.022	.096	
	NO	04				

Table 2 shows the several responses of secondary school IT Teachers related to the use of modern alternative tools in education and t-test values. Most IT Teachers of secondary schools in the public sector choose the option YES that is showing they admitted the role of modern alternative tools and technology in education.

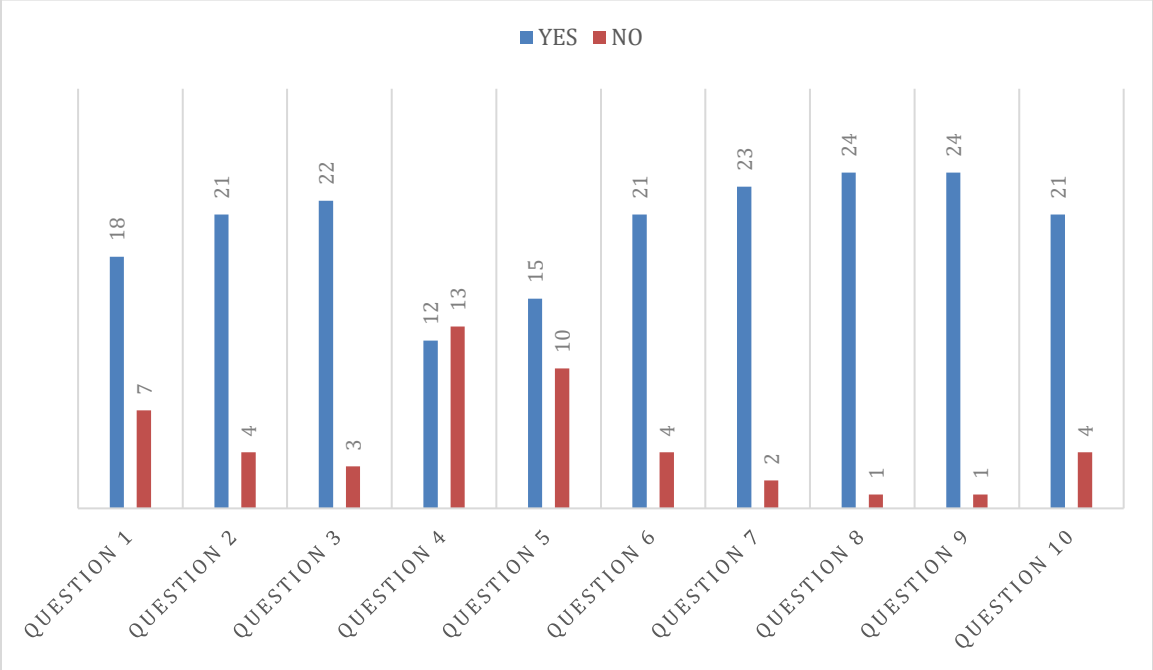

Figure: 3. Graphical Representation of Frequency of Data

Conclusion

Majority of IT Teachers of the public sector know the role of technology in education but they were not satisfied the facilities provided by government. They were unhappy due to the shortage of modern digital equipment's as well as a smaller number of IT experts present in their institutions. Most of the IT Teachers were doing great even they were single in number and control the whole school. Their most of the answers in survey was YES that shows that they want a change in education tools to replace the old methods from new one according to digital era. They admitted that their institution has only some basic digital tools and has non availability of latest tools that helped in education to students as well as teachers. They emphasized on education system must be totally connected to digitalization and advanced technology tools.

Recommendations

According to the results of the research study, following some recommendations were made:

1. Most of the IT Teachers want to basic facilities from government to achieve the goals for awareness of modern alternative tools or digital tools, so they can provide basic knowledge about ICT to staff and students.
2. IT Teachers demands more and more digital equipment's that fulfil the requirement of whole institutions.
3. IT Teachers suggested that there will be more IT Experts in each institution rather than only 1 that handle the whole school.

References

1. Aksal, F. A. (2015). Are headmasters digital leaders in school culture? *Education and Science*, *40*(182), 77-86.
2. Alan, B., & Mark, W. (2010). The end of techno-critique: The naked truth about 1:1 laptop initiatives and educational change. *The Journal of Technology, Learning, and Assessment*, *9*(6).
3. Anderson, R.E., & Dexter, S. (2005). School technology leadership: An empirical investigation of prevalence and effect. *Educational Administration Quarterly*, *41*(1), 49-82.
4. Benedetto, R. (2006). How do independent school leaders build the educational technology leadership capacity of the school? *Unpublished doctoral dissertation, Drexel University*, United States.
5. Bernhardt, V. (2015, November). *Toward system-wide change. Educational Leadership*, *73*(3), 56-59.
6. Bingimlas, K. A. (2009). Barriers to the successful integration of ICT in teaching and learning environments: A review of literature. *Eurasia Journal of Mathematics*, *5*(3), 235-245.
7. Blair, N. (2012, January/February). Technology integration for the new 21st-century learner. Principal. 8-13. 93
8. Cakir, R. (2012). Technology integration and technology leadership in schools as learning organizations. *The Turkish Online Journal of Educational Technology*, *11*(4), 273-282.
9. Campbell, B. (2012). Innovative leadership: Insights from a learning technologist. *The Quarterly Review of Distance Education*, *13*(4).
10. Cator, K. In: Toppo, G. (2011, July 25). Making students literate in a digital age. *USA Today*.
11. Denmark, V. (2016). Transformational leadership: *A matter of perspective*. Retrieved from http://www.advanc-ed.org/source/transformational-leadership-matterperspective 95
12. Dexter, S., Anderson, R. E., & Ronnkvist, A. (2002). Quality technology support; What is it? Who has it? and What difference does it make? *Journal of Educational Computing Research*, *26*(3), 287-307.
13. Eliophotou-Menon, M. (2016). The link between transformational leadership and teachers' job

satisfaction, commitment, motivation to learn, and trust in the leader. *Academy of Educational Leadership Journal*, *20*(3), 12-22.

14. Eren, E. S. (2011). Technological leadership behavior of elementary school principals in the process of supply and use of educational technologies. *Education*, *131*(3), 625-636.
15. Fox, M. (2011). *Implementing 21st-century skills*: A paradox in a traditional world of education? (Doctoral dissertation). Retrieved from Proquest.
16. Garner, B. (2014). Teaching and learning in the digital age: The rules have changed. The *Toolbox: A Teaching and Learning Resource for Instructors*. *12*(3).
17. Gay, L. R., & Airasain, P. (2003). *Educational research: Competencies for analysis and applications (7th ed.)*. Retrieved from http://libguides.usc.edu/writingguide/ quantitative
18. Jimoyiannis, A., & Komis, V. (2007). *Teacher development*. Teacher Development. Retrieved from http://www.ecedu.upatras.gr/services/people/files_publications/ TD/JimoyiannisKomis.pdf.
19. Kelly, F.S., McCain, T., & Jukes, I. (2009). Teaching the digital generation: No more cookie-cutter high schools. Thousand Oaks, CA: Corwin. Kouzes, J.M., & Posner, B.Z. (2007). *The leadership challenge (4th ed.)*. San Francisco, CA: Jossey-Bass.
20. Lenhart, A., Madden, M., Purcell, K., Rainie, L., Smith, A., & Zickuhr, K. (2011). Teens, kindness and cruelty on social network sites. *Pew Internet Safety and America Life Project*. Washington, D.C.
21. Marx, G. (n.d.). *Twenty-one trends for the 21st century: Out of the trenches and into the future, their profound implications for students, education, communities, and the whole of society*.
22. Morphew, V. N. (2012). A constructivist approach to the national educational technology standards for teachers. *International Society for Technology in Education*.
23. Niekerk, M. V., & Blignaut, S. (2014). A framework for information and communication technology integration in schools through teacher professional development. *Africa Education Review*, *11*(2), 236-253.
24. Odom, S. F., Jarvis, H. D., Sandlin, M. R., & Peek, C. (2013). Social media tools in the leadership classroom. *Journal of Leadership Education*, *12*(1), 34-53.
25. Pelgrum, W. J. (2007). *IEA SITES International Report*: School conditions for pedagogy and ICT: International Association for the Evaluation of Educational Achievement. Pretoria: Unisa Press.
26. Pelham, B. W. (2013). *Intermediate statistics*: A conceptual course. Thousand Oaks, CA: Sage Publications.
27. Qualman, E. (2012). *Digital leader*: 5 simple keys to success and influence. New York, NY: McGraw-Hill.
28. Reeves, D. B. (2009). *Leading change in your school: How to conquer myths, build commitment, and get results*. Alexandria, VA: Association for Supervision and Curriculum Development.
29. Stuart, L.H., Milles, A.M., & Remus, U. (2009). School leaders, ICT competence and championing innovations. *Computers & Education*, *53*(4), 733-741.
30. Unal, E., Uzun, A. M., & Karatas, S. (2015). An examination of school administrators' technology leadership self-efficacy. *Croatian Journal Educational*, *17*(1), 195- 215. doi:10.15516/cje.v17i1.968
31. Vallance, M. (2008). Beyond policy: Strategic actions to support ICT integration in Japanese schools. *Australasian Journal of Educational Technology*, *3*.
32. Wang, C. (2010). Technology leadership among school principals: A technologycoordinator's perspective. *Asian Social Science*, *6*(1), 51-54.
33. Yu, C., & Durrington, V.A. (2006). Technology standards for school administrators: An analysis of practicing and aspiring administrators' perceived ability to perform the standards. *NASSP Bulletin*, *90*(4), 301-317.
34. Zhao, Y. (2009). Catching up or leading the way: *American education in the age of globalization*. Alexandria, VA: Association of Supervision and Curriculum Development.