The Effect Of ICT On Administrative Effectiveness: Throwing A Glance On Upper And Lower Dir Educational Institutes In Khyber Pakhtunkhwa, Pakistan

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ABSTRACT
The Government of Khyber Pakhtunkhwa (KPK) Pakistan has introduced several ICT initiatives and projects with the help of aid agencies, international and regional organizations to transform the education system. Information and Communication Technology application has led to changes the way educational institutions carry out activities and processes not only limited to teaching and learning process or monitoring of students’ progress but it has impact in education administrative processes and management. The current study is an attempt to investigate the Principal’s administrative effectiveness using ICT facilities/tools working in Districts Upper and Lower Dir Khyber Pakhtunkhwa Pakistan. The research design of this study is correctional which has the variables; ICT as independent variable, administrative effectiveness as dependent variable. The target population includes subject specialists working in the higher secondary schools of these two districts. Due to COVID-19 schools were closed therefore, the questionnaire in the Google form was send to the respondents via Whatsapp. Collected data Analysed by using SPSS software, V-25. From the results it has been concluded that ICT has the potentials to make school administration more effective. Recommendations of this study has provided a road map for policy
makers and educational leaders to cope with existing problems and challenges related with the organization effectiveness.

**Keywords.** Administrative effectiveness, ICT, Principals, Higher Secondary Schools, Subject Specialists.

**1.0 Introduction:**

The use of Information and Communication Technology in the administration of schools is a shift towards modernization and digitalization. The emergence of Information and Communication Technology (ICT) has become possible because of the advancement of telecommunication, electronic gadgets and computers (Mwambo 2019).

ICT is an umbrella word which is comprised of different applications/devices audio/video devices, smart phones/tablets, computers/laptops, software and hardware networks, satellite systems etc and as well as all those services which are related to these technological devices like emails, blogs, video conferencing, social networking sites and blogs etc (Enrique Hinostroza 2018). With the usage of Information Technologies the entire process of teaching and learning has been only revolutionized but because its usage tasks pertaining to administration are effectively performed (Semenov 2005).

Administration is referred to the process by which the goals and objective of an organization like school are accomplished through the utilization of human and material resources. Therefore, for the attainment of objectives, the roles of the administrators are very crucial because the powers of taking decisions are conferred to them. In educational setting, the duties of actualization of the desired aims and objectives rest upon the shoulders of administration (Juma, Raihan et al. 2016).

In the province of Pakistan, Khyber Pakhtoonkhwa, principals are administrators in public sector Higher Secondary Schools. Principals are responsible for performing various administrative tasks such as leading, planning, coordinating, organizing, evaluating, providing of equipment and facilities, and purchasing/maintaining of materials. In addition to these principals are responsible for handling school budget and finance and managing relations with students, staff and other stakeholders (Besong 2014).

The effectiveness of principals in administration is dependent on their ability to accomplish the aforementioned responsibilities successfully and efficiently. The degree to which an institution or school accomplishes previously established goals and objectives via the use of people and material resources is referred to as effectiveness. High productivity, high teacher motivation, integration and maximum use of individual potentialities, greatest exploitation of available resources, and contribution to society are markers of principal effectiveness (Uzoigwe 2013).

Under the IT Labs Project, the government has established IT Labs in all Higher Secondary Schools to meet the technological demands of Khyber Pakhtunkhwa. Furthermore, the online Biometric Attendance System (BAS) has been introduced in Secondary Schools for optimal administration. A new SMIS system has also been successfully installed to merge human and
computer-based processes. SMIS is an abbreviation for School Management Information System, and it is a data gathering, storage, integration, analysis, and distribution tool meant to aid in planning, decision making, supervision, and management (Kpese, 2019). Organizational effectiveness is a bottleneck problem, particularly in the education sector, and in order to find a solution or implement changes, the government has implemented ICT in educational institutes. Consequently, this study will look into the administrative effectiveness of these educational institutes in Districts Upper Dir and Lower Dir.

1.1 Problem Statement
Principals' administrative responsibilities are highly complicated. These duties include planning, decision making, communication, influencing, instruction supervision, guiding, personal administration of staff and students, coordination and assessment of curriculum creation, financial administration, community relations, and facility and service maintenance (West 2018). Several studies have been conducted to determine the effects of ICT on principals' administrative performance in secondary schools. According to these studies, ICT use has a positive impact on administrative effectiveness in many areas of school administration, including financial and general administration, instructional supervision, and record keeping/record preparation, improved communalization, result preparation and documentation, and so on. This demonstrates that the usage of ICT has become a requirement for the principals of Higher Secondary Schools.

1.2 Research Objectives
I) To investigate the availability of ICT related facilities in Higher Secondary Schools of District Dir Upper and Lower.
II) To measure the relationship between ICT and administrative effectiveness.
III) To investigate the effect of ICT and Administrative effectiveness of principals of Higher Secondary Schools
IV) To test whether the role of gender moderates the relationship of ICT and Administrative effectiveness of Higher Secondary School Principals.

1.3 Research Questions
I. Has the Government provided ICT facilities to Higher Secondary Schools operating in Dir Upper and Lower?
II. Is there any relationship between ICT and Principal Administrative Effectiveness (PAE)?
III. Is there any effect of ICT on Principal Administrative Effectiveness (PAE)?
IV. Does the proposed model that link ICT and Administrative effectiveness fit with the collected data?

1.4 Theoretical framework
The most applicable theory to the current study appears to be system theory. Bertalanffy proposed system theory in 1920. Organizations are viewed as systems in system theory. According to this
theory, a system is composed of several elements known as sub-systems, which are interdependent and interrelated parts that are linked in such a manner that the interaction of one part affects the entire system. As a result, for an organization to work properly, one element of the system must communicate with and rely on another portion of the system. Furthermore, system theory is particularly pertinent to the school educational system because, like the social system, the educational system is founded on the interaction and interdependence of diverse sections within the educational system. The principal's function as the top executive of school administration is highly important (Ogundele, Sambo et al. 2015).

2.0 LITERATURE REVIEW
Administration is the collection of processes that use people and material resources to fulfil predetermined objectives and goals inside an organisation, either formally or informally. Administration conducts a variety of activities in order to achieve set goals, such as planning, coordinating, organising, commanding, regulating, maintaining, and inspiring, among others. In other words, administration is the management of people, resources, materials, and time in order to achieve predetermined goals (Oko, Eneasator et al. 2011).

When administration is used in the school system, it is referred to as educational administration or school administration. Educational administration is the process of combining material and non-material resources in order to achieve predetermined educational goals within an educational system. Human and non-human materials are combined in educational administration to improve the effectiveness of teaching and learning. Furthermore, educational administration encompasses tasks such as planning, organising, coordinating, directing, commanding, assessing, and encouraging teaching, non-teaching personnel, and students, as well as employing all available resources to achieve goals in an educational context. As a result, the function of administration is critical for the achievement of an educational institution's targeted results (Karren, 2019).

2.1. Administrative Effectiveness
Mzee (2016) defines effectiveness as the ability to provide the intended results. When anything is said to as effective, it indicates that it meets the expected criteria or serves the intended goal.

Administrative effectiveness is defined by Akomolafe (2012) and Victor (2017) as the actions and efforts employed to achieve specified goals. Administrative effectiveness necessitates administrative efforts combined with technical abilities, which pave the way for organisational tasks and, ultimately, organisational objectives.

Furthermore Victor (2017) defines administrative effectiveness as: high teacher motivation, high productivity, and wise use of members' abilities, maximal exploitation of available resources and materials, and service to society. Similarly, Egboka, Ezeugbor et al. (2013) has enlisted indicators of effective school administration, which include: maintaining discipline, effective teaching and learning processes during school hours, discouragement of all illegal examination practises, well-
maintained school records, exemplary leadership in the form of a principal, high student performance, teacher involvement, and a clean school environment.

Uzoigwe (2013) stated that the greatest determent of effectiveness in terms of educational outcomes is school administration.

### 2.2 Administrative Effectiveness of School Principals

According to Belo (2016) the effectiveness of school administration is dependent on the achievement of predetermined goals. She concluded that the principle, as a school administrator, will be effective if he or she is able to fulfil goals by overcoming all barriers. According to her, principals should focus on managing the efficient operation of schools, as well as absorb all types of pressures, face obstacles, and work toward the achievement of school goals.

According to Nwazor, Chukwudi et al. (2016), the administrative effectiveness of a principal is defined as his or her capacity to unify and converge varied energies into a single line for the success of an organisation such as a school. According to him, the effectiveness of a principal as an administrator is defined as a cordial interpersonal relationship with staff that promotes motivation and creates a working climate in which all available resources (human and material) are utilised, resulting in high productivity in terms of outputs. The author went on to say that motivation does not have to be monetary or material in nature; it may be as simple as a word of appreciation or acknowledging staff members' thoughts. Similarly, he stated that the administrative performance of the principal is tied to the collaboration of the school employees because every activity in school necessitates a team effort.

Some authors like Nwazor, Chukwudi et al. (2016) are of the view that effectiveness is another name of efficiency and efficiency according to him is obtaining the highest possible outputs through the prudent use of available resources.

Uche (2002) identified evidences of administrative effectiveness of principals in his studies, such as high staff morale, which leads to motivation of staff, a conducive learning climate, resolving student problems through guidance and counselling, teamwork, interaction of all stakeholders, and adherence to rules and regulations. He went on to say that efficient school administration is also demonstrated by the usage and maintenance of school facilities, the inception of new ideas/plans, the engagement of employees in decision making, and the evaluation of performance. Edet, Benson et al. (2017) identified four dimensions of administrative effectiveness of principals; managing human and material recourses, interpersonal interaction and relationship, morale and motivation of staff and management of school funds and finance.

Grissom and Loeb (2011) evaluated five dimensions of administrative effectiveness in schools: managing pedagogy, developing internal relationships with students and staff, organisational management of personnel and materials, maintaining external relationships with parents and stakeholders, and managing school schedules and student discipline.
2.3 Use of ICT in School Administration

According to Molindo (2014), ICT is used as an umbrella word for several sorts of gadgets/devices such as computer/laptop, Smartphone, printer, scanner, camera, and audio/video player/recorder, among others. He goes on to say that ICT is a combination of software, hardware, and satellite networks that has enabled communication and information exchange in the form of video conferencing, blogs, emails, and social media networks such as Facebook, Whatapp, and Twitter, among others.

For school administrators, information and communication technology have become indispensable tools. As a result, it is critical for school administrators to remain updated on the use of technology in the school seating (Adebayo, 2012).

Furthermore, Oko, Eneasator, and Nneka (2016) have claimed that for effective reforms, better planning and setting standards the use of ICT in school administration is highly vital because of its importance for the smooth and efficient administration of educational system. They further argue that ICT gives tools and facilities for school administrators to accomplish their responsibilities conveniently and rapidly, allowing information to be transmitted, saved, accessed, and processed and transferred by them and which so contributes to administrative effectiveness. The writers have underlined the usage of ICT would boost data processing process due which administration in educational establishments would be better.

Furthermore, Kayiwa Shafik Juma, Raihan and Clement (2016) view that for efficient running of educational institutions, the role of administration is very decisive because it is administration which utilize the imperial and human resources for the accomplishment of educational goals. Therefore, according to them electronic appliances of ICT are applied for efficient transactions of administrative targets, keeping of records, prompt handling of information and other services. Other researchers like Antonio, and Lorenzo (2019) are of the opinion that ICT can be effectively used in managing information of three essential aspects educational institution which include general administration, staff administration and students administration and all and above communication which is the most essential part of these three aspects of administration can easily be disseminated.

According to Mwambo (2019), the integration of ICT tools in different areas such as decision making, managing instructional programmes and activities, administration of staff and students, management of physical facilities, supervision of finance, and interaction with outside stakeholders of the school has positively influenced the administrative duties of principals of schools. He further claims that he/she would be unable to accomplish his/her administrative obligations without accurate, sufficient, and timely information. He points out that manually storing, preserving, and presenting this vast amount of data on paper would result in a waste of time, money, and other resources, making administrative operations inefficient. Therefore, the role of ICT in administrative effectiveness of school is gigantic and it is going to be discussed in the coming forth lines.
2.3.1 Organization of Information
In order to categorise data (of staff/students) on the basis of origin, sex, performance, class, and other factors in school, school management requires fundamental information on students, staff, and facilities in an organised manner. As a result, this data is structured, saved, and accessed in a readily accessible format via the computer (Juma, Raihan, and Clement 2016).

2.3.2 Analysing the Data and information quickly and accurately
ICT not only facilitates the exchange of information, but it also investigates new methods of sharing information that save money and time. The use of ITC facilities organises available data quickly and accurately, which is then displayed in the form of graphics and tables, among other things (Juma, Raihan, and Clement.2016).

2.3.3 Coordination of Data
ICT tools are available to share structured and efficient data with other relevant departments in order to avoid redundancy and duplication of data/information while also improving data coordination (Juma, Raihan, and Clement.2016)

2.3.4 Helps in Decision Making
Manual information processing is a time-consuming job that creates several impediments that make it difficult for administrators to make decisions. On the contrary, with the aid of ICT, data is neatly structured and easily available, allowing for rapid and effective decision-making and raising educational standards. (Antonio and Lorenzo, 2019)

2.3.5 Effective Allocation of Resources
It is difficult for educational administrators to manually plan, tackle, and use the institution's existing resources, but with the use of ICT, it becomes simpler to distribute institutional resources properly, which eventually assists in planning in the long term (David, Tanui, & Oruta (2019).

2.3.6 Effective Communication with Stakeholders
Integration of ICT devices such as computers, smart phones, and various applications and programmes such as WhatsApp, Twitter, Facebook, email, and messenger, among others, has opened new avenues for school administration to communicate with stakeholders that are not only efficient and quick, but have also replaced the ancient system of correspondence and communication. Because of recent advances in ICT, the globe has shrunk into a global village, and communication has become quick, convenient, and less expensive (Gilbert, Irene, & James.2020).

2.3.7 The Use of ICT in Financial Management
The management of school finances is also an administrative responsibility of the principal. School administrators utilise ICT to regulate finances, establish budgets, and monitor spending with adequate record keeping using computers. Prior to the advent of ICT, all financial operations such
as budgeting, purchasing, payroll, cash flow, and other audit transactions were handled manually, and their records were preserved in hardcopies. All such transactions are now processed online by educational administrators using ICT (David, Tanui, & Oruta (2019).

2.3.8 Staff Administration
ICT provides assistance in managing human resources and staff administration by evaluating needs of staff, the process of recruitment of staff monitoring the performance of staff and all and above facilitates communication with staff. For the improvement of school quick decisions are to be undertaken by the administration and which is a distance of one click if ICT is integrated in school (Ray, 2020) , (Qureshi, & Qazi Abro, 2016).

2.3.9 Students Administration
Information system of students’ facilities school administration to assess the performances and achievements of students which help the administration to work on the remedial measures whenever there is some weakness. Furthermore ICT organizes the students attendance record, payment of fee record etc (Ray, 2020) ,(Qureshi, & Qazi Abro, 2016).

2.3.10 Enhancement of overall Planning
Administration uses SMIS to plan and make decisions based on the information and data available about staff, students, and resources. The plans are carried out while keeping the available resources in mind, and a road map of action is finalised (Ray, 2020). (Qureshi, & Qazi Abro, 2016).

2.3.11 Miscellaneous Administrative Activities
Educational administrators use ICT to schedule classes, create timetables, and assign tasks to staff and students. Staff and student attendance are also tracked online using ICT. The results of students are generated, and online registration is available (Ray, 2020). (Juma, Raihan, & Cleme 2016)

3.0 Research Design
The research design is a framework of procedures and methods which is employed to collect, analyze data the research process (Ranganathan and Aggarwal 2018).The research design of the current study is correlational in nature which has two variables; ICT is independent variable where as the Principal administrative effectiveness is dependent variable. Coorelational research design helps us about the prediction and explanation of the relationship of variable and it also facilities us to measure how and what extent the variable are correlated (Seeram 2019). To obtain data in correlational research design, survey /questionnaire is usually used(Omair 2015).For the collection of data of the current study quantitative approach has been employed .Quantitative approach is quite appropriate because its results can be generalised for the entire population (Creswell 2013, Muhammad 2015).

3.1 Population and Sampling
The target population of the current study is comprised of 334 subject specialists working in Higher Secondary Schools of District Dir Lower and Dir Upper. For providing equal representation to every stratum stratified sampling followed by random sampling technique has been used. Thus a sample size of subject specialists from both the districts is 114(Krejcie and Morgan 1970, Muhammad 2015). Permission was obtained for visiting and collection of data from these schools from the concerned authorities.

3.2 Instrument of data collection
Questionnaire having close ended questions has been administered to the subject specialists who were serving these Higher Secondary Schools. The questionnaire was comprised of three parts; Part A dealt with demographic information had 5 items, Part B was about Principal Administrative Effectiveness (PAE) comprising of two sections; Section 1 was about the availability of facilities for administrative purposes has 18 items and Section 2 dealt with PAE was comprised of 16 items whereas Part C which is about the perceived importance of ICT is comprised of 10 items; making the total numbers of items in the questionnaire as 49. The questionnaire which was administered had been adopted from Nwafor (2020) with his permission.

3.3 Data Collection Procedure
For collection of data permission was obtained from District Education Officers who are supervising sampling Higher Secondary Schools. Furthermore, due to COVID-19 schools were closed due to which questionnaire in the shape of Google forms was send via Whatsapp to the respondents.

3.4 Data Analysis
Data collected from respondents was analysed through SPSS V-25. For the relationship of ICT and Principal Administrative Effectiveness (PAE) Pearson Correlation techniques has been used whereas for the effect of ICT on the Principal Administrative Effectiveness (PAE) Linear Regression has been utilized.

3.5 Results

Demographic profile of the respondents N=213
The demographic information of respondents has been shown in table 4.1

Table 4.1 Demographic Profile of respondents (N=213)

<table>
<thead>
<tr>
<th>Demographic characteristics</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>171</td>
<td>80.7</td>
</tr>
<tr>
<td>Female</td>
<td>42</td>
<td>19.3</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-30 Years</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>31-35 Years</td>
<td>49</td>
<td></td>
</tr>
<tr>
<td>36-40 Years</td>
<td>61</td>
<td></td>
</tr>
</tbody>
</table>
Total 213 Subject Specialists who participated in the study included one hundred and seventy one (80.3%) were male while forty two (19.7%) were female Subject Specialists. From age it is clear that SS having age of 25 to 30 were four in number while forty nine were between 31 to 35; similarly sixty one(28.6%) were between 36 to 40 years of age and eighty nine (41%) were in more than forty years. Twenty five (11%) possessed B.Ed degrees, one hundred fifty nine (74.6%) had M.Ed Degrees while the rest twenty nine (13%) obtained other degrees in terms of Professional Qualification. Coming to teaching experience twenty six (12.2%) had less than one year experience, sixteen(7.5%) had 1-5 years experience, forty five (21.3) possessed 6-10 years experience, eighty eight(41.3%) had 11-15 years of experience, twenty (9.4%) had 16-20 years of experience while eighteen(8.5%) were more than twenty years experienced. In academic qualification one hundred and fifty three (71.8%) had obtained master degrees while sixty (28.2%) claimed of having other academic degrees like M. Phil /M.S etc.

### 4.2 Reliability and Validity of the instrument

The values which have been measured of different indices for reliability are given in Table 4.2.

**Table 4.2: Reliability measurement indices**

<table>
<thead>
<tr>
<th>Construct</th>
<th>Cronbach alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICT</td>
<td>0.75</td>
</tr>
<tr>
<td>Principal Administrative Effectiveness (PAE)</td>
<td>0.81</td>
</tr>
</tbody>
</table>
Table 4.2 reflects the reliability for ICT and PAE and it evident from the values of Cronbach Alpha that the internal reliability is within the required range of threshold values. Furthermore, as the questionnaire has already been used for other studies therefore it was valid to be used for the current studies. Similarly face validity also determined the validity of the instrument. For this it was concluded that the instrument was suitable to be used for data collection.

4.3 Normality of the data

Table 4.3: Descriptive statistics (N = 213)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>SD</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information and Communication Technology (ICT)</td>
<td>1.00</td>
<td>3.70</td>
<td>1.86</td>
<td>0.72</td>
<td>0.73</td>
<td>-0.43</td>
</tr>
<tr>
<td>Principal Administrative Effectiveness (PAE)</td>
<td>1.19</td>
<td>2.69</td>
<td>1.86</td>
<td>0.66</td>
<td>0.56</td>
<td>0.75</td>
</tr>
</tbody>
</table>

Table 4.3 indicates the values of Skewness and kurtosis. Keeping in view the values Skewness and Kurtosis it is concluded that the two constructs namely PAE, ICT are normally distributed.

Techniques for secondary analysis:

In search of first objective of the study the researcher raised the question that, RQ1.Has the Government provided ICT facilities in Schools? For the analysis of this question percentage distribution technique has been utilized and which has been shown in the Table 4.4.

4.4 Table Availability of ICT Facilities in Higher Secondary Schools

<table>
<thead>
<tr>
<th>Facility</th>
<th>Available</th>
<th>Not Available</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>%</td>
</tr>
<tr>
<td>Computer</td>
<td>213</td>
<td>100</td>
</tr>
<tr>
<td>Handset</td>
<td>32</td>
<td>15</td>
</tr>
<tr>
<td>Printer</td>
<td>213</td>
<td>100</td>
</tr>
<tr>
<td>Laptop</td>
<td>213</td>
<td>100</td>
</tr>
<tr>
<td>Radio</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Television</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Computer Accessories</td>
<td>213</td>
<td>100</td>
</tr>
<tr>
<td>Scanning Machine</td>
<td>191</td>
<td>89.7</td>
</tr>
</tbody>
</table>
From Table 4.3 it is evident that some basic ICT facilities like Computer, Laptop, Printer, Internet services, and Computer Accessories are available (100%) in all school. Similarly Radio, Television, Projector, Projector Screen, Satellite Dish, Software, Fax Machine are not available in any School. Handset is available in thirty two schools (15%) while the same is not available in one hundred and eighty one schools (85%). Scanning Machine is available in one hundred ninety one Schools (89.7%) whereas as in twenty two Schools (10.3%) it is not available. In the same way facility of Video Player is available in one hundred and twelve (52.5%) Schools and is not available in one hundred and one (47%) schools. As far as the availability of CCTV is concerned it is available in two hundred and Eight (97.7%) Schools while it is not available in five (2.4%) schools. Voice Amplifier is available in one hundred ninety eight (90%) and is not present in twenty two (10%) schools.

4.4 Correlation
Referring to the second objective of the study, Research question-2 was framed.

4.5 Correlation between ICT and PAE

Table 4.5 Correlation between ICT and PAE (N=213)

<table>
<thead>
<tr>
<th></th>
<th>ICT</th>
<th></th>
<th>PAE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICT</td>
<td>Pearson Correlation: -0.036, Sig. (2-tailed): 0.607</td>
<td></td>
<td>Pearson Correlation: -0.036, Sig. (2-tailed): 0.607</td>
</tr>
</tbody>
</table>

Table 4.5 indicates that there is moderate negative and insignificant correlation between ICT and PAE (r= -0.036, p=0.607, n=213).
Table 4.6 Correlation between ICT and Record Keeping RK (N=213)

<table>
<thead>
<tr>
<th></th>
<th>ICT</th>
<th>RK</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICT</td>
<td>Pearson Correlation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
</tr>
<tr>
<td>RK</td>
<td>Pearson Correlation</td>
<td>-.052</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
</tr>
</tbody>
</table>

Table demonstrate that there is moderate negative and insignificant correlation between ICT and Record Keeping (r= -.052, p=.446, n=213).

4.7 Correlation between ICT and Communication C (N=213)

Table 4.7 Correlation between ICT and Communication Com (N=213)

<table>
<thead>
<tr>
<th></th>
<th>ICT</th>
<th>Com</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICT</td>
<td>Pearson Correlation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
</tr>
<tr>
<td>Com</td>
<td>Pearson Correlation</td>
<td>-.019</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
</tr>
</tbody>
</table>

The correlation between ICT and Communication is little and insignificant as reflected in the table (r= -.019, p=.446, n=213).

4.8 Correlation between Record Keeping RK and Communication Com (N=213)

<table>
<thead>
<tr>
<th></th>
<th>RK</th>
<th>Com</th>
</tr>
</thead>
<tbody>
<tr>
<td>RK</td>
<td>Pearson Correlation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
</tr>
<tr>
<td>Com</td>
<td>Pearson Correlation</td>
<td>.593</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
</tr>
</tbody>
</table>

As far as the correlation between Record Keeping and Communication is concerned it is moderate positive and significant which has been displayed in the table (r= -.593, p=.000, n=213).

4.5 Effect:

Responding to the third objective RQ-3 is formulated.

RQ3.Is there any effect of ICT on PAE?

To analyze the impact of ICT on PAE (Principal Administrative Effectiveness) Leaner Regression has been used and the results of which are given in Table 4.5.

Table 4.5. Effect of ICT on PAE (N=213).

<table>
<thead>
<tr>
<th></th>
<th>Beta Estimate</th>
<th>P</th>
<th>Result</th>
</tr>
</thead>
</table>

http://www.webology.org
Table 4.5 displays that there is insignificant effect of ICT on PAE (β=0.054, p=0.432).

4.6 Role of gender (Moderator).

For the in-depth investigation of fourth objective research question-4 enlisted for analysis.

RQ4 Does gender as moderator affect the relationship between ICT and PAE?

Table 4.9 Regression Analysis for the effect of moderator.

<table>
<thead>
<tr>
<th>Model</th>
<th>Beta Estimate</th>
<th>P</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ICT ----&gt; PAE</td>
<td>-0.036</td>
<td>0.000</td>
</tr>
<tr>
<td>2</td>
<td>ICT ----&gt; PAE</td>
<td>0.024</td>
<td>0.725</td>
</tr>
<tr>
<td></td>
<td>↑ Gender</td>
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</table>

Results of Table 4.9 highlights that (β=0.024, p=0.725) gender has no effect as moderator on the relationship of ICT and PAE. Ali (2017) states that the aim of moderator is twofold as it either strengthens the relationship between dependent and independent variable or weakens the relationship of the dependent and independent variable. Johnson (2013) affirms that in some cases gender has effect while in some cases gender has no effect as a moderator. Like the current case, another study of Niqab (2015) has also shown that there is no effect of gender as moderator on the relationship between PLS (Principal Leadership Skills) and IC (Intellectual Capital).

3.0 Discussion:

Pakistan is also progressing by leaps and bounds therefore, the digitalization and use of ICT has become imperative in every walk of life, and hence ICT in school administration is unavoidable. This study seeks to point out the impact of the usage of ICT on administrative effectiveness of Principals of higher secondary schools in Dir upper and lower, Khyber Pakhtunkhwa, Pakistan.

3.1 Availability of ICT facilities:

Findings (Table 4.4) of this study portray that facilities or tools of ICT have been provided in schools but still there are many deficiencies in the provision of these facilities. However, some basic facilities like Computer/Laptop, printer and internet have been provided to all schools. Now availability is one issue but the real issue the use of these available facilities for the sack of administration because many old aged principals have low computer literacy due to which the usage of the ICT for effective administration is low. In order to get the required results capacities of principals have to be developed and they have to be trained in this regard. Nwa for (2020) also depict similar picture because in his study he also found low availability of ICT facilities. While
Adebayo, S. S. (2013) states that ICT has become indispensable for school administration because it keeps them abreast with the changing scenario. For effective and smooth administration ICT is very essential because it facilitates the administrators to perform their tasks timely and tirelessly (Oko, Eneasator, & Nneka, 2011).

3.2 Relationship between ICT and Administrative Effectiveness.
The results (Table 4.5) of the current study show that there moderate correlation between ICT and PAE. For getting the results Pearson Correlation test was used. According to Nwafor, C (2020) these are high positive relationship between ICT and varied areas of school administration. Through the use of ICT predetermined objective of school administration by the integration of material and human resources (Bassey, V. O., & Otu, E. S., 2015). Administrative effectiveness is heavily depend upon the better use of ICT (Ereh, C. E., Ogechi, C. F., & Ikpo, P. A. (2019). While with the use of ICT the degree of administrative effectiveness of principals are enhanced (Chidinmachinenye, T., & Anachuna, O. (2019. Many other studies have found that there is highly significant relation between ICT and school administration.

3.3 Effect of ICT on Principal Administrative effectiveness
Pakistan being a third world country spends a very meagre amount of its budget on education and the situation is further worse in our province K.P, therefore ,schools have not been developed as these should be (Rahman, 2014).To flourish schools the role of administrators are pivotal and since principal are administrators therefore , school effectiveness is dependent upon effective administration. Results of the contemporary study shows that ICT has insignificant effect on administrative effectiveness. While other studies has shown that ICT has a significant effect on Administrative effectiveness. As living in modern era the impact of technology is huge and therefore effective administration the use of technology is indispensable (Adebayo, 2013). For bringing everlasting changes ,productive planning and setting standards the integration of ICT in school administration is imperative (Oka et al, 2016). They further states that ICT provides facilities and tools which help principals to undertake the assigned tasks in an easy and quick manner ,help them to communicate information efficiently and process data/ information effectively which ultimately helps them to achieve administrative effectiveness . Similarly, Kayiwa et al (2016) argue that for the attainment of educational goals the role educational administration in the form of principals is of decisive and these goals are achieved when electronic gadgets are used the transactions of administrative tasks become quick and efficient. Antonio, V. V., & Lorenzo, N. E. (2019) are of the opinion that ICT utilization for three major components of administration is extremely effective which are general administration, staff administration and student administration .They further state that through ICT communication within these three components can be made quickly and effectively. According to Mwambo (2019) administrative duties of principals are positively influenced by the utilization of ICT in varied areas of school administration like making of decision, managing academic activities ,staff and student administration, management of physical facilities, monitoring finance and having better interaction.
with outside stakeholders. He further notes that manual handling of administrative functions is cumbersome and wastage of time, money and other resources.

5.4 Gender as moderator
According to Ali (2017) the role of gender is of two types; gender would either strengthens the relationship between dependent and independent variable or would weaken the relationship between dependent and independent variable. Johnson, (2013) proclaimed that the role of demographic variable as moderator may have an effect on the relationship of dependent and independent viable or may have no effect on the relationship of dependent and independent variable. The results of the current study reveal that gender has no effect in the relationship of ICT (Information and Communication Technology) which is independent variable on the PAE (Principal’s administrative effectiveness) which is dependent variable. Different studies have different results in respect of demographic variable as moderator. The study conducted by Niqab (2015) in order to find relationship between PLS (Principal leadership skills) and IC (Intellectual capitals) with demographic variable as moderator found that there is no effect of moderator in the relationship of PLS and IC. Hence it is concluded that the study of Niqab (2015) is in line with the current study having no effect of demographic variable on the relations of ICT and PAE. On contrary the study of Ali (2017) showed different picture where demographic variable has a significant effect on the relationship of instructional leadership and school effectiveness.

7.0 Implications:
I) School administration need basic information of staff, student and materials and these information can be organized and stored by the use of ICT. Furthermore, the sharing of such information can be done quickly with less cost of time and money (Juma, K. S., Raihan, A., & Clement, C. K. (2016). Manual handling of data is a difficult work but the contrary the ICT helps to organize data promptly due to which effective decisions can be made which finally rises the quality and standard of education (Antonio, & Lorenzo, 2019). Planning and utilization of available recourses for school administration is difficult manually but by the use of ICT it became easier to allocate school resources wisely which finally aids to achieve the educational goals (David, K. M., Tanui, E., & Oruta, F. (2019). The integration of ICT devices like computer and smart phone with its various social networking application like Facebook, whatsapp, Twitter, messenger and email etc. have revolutionized the area of communication with stakeholders which not only quick but also efficient replacing the obsolete system of correspondence (Gilbert, O., Irene, D. J., & James, S. (2020).

II) According to Adegun, O. A. (2005). the indicators of administrative effectiveness of principal are high morale of teachers, high productivity, wise utilization of human talents, the highest use of available materials and contribution of society. However, Uzoigwe, B.N. (2013) noted that the highest determent of effectiveness of school is administration in terms of outcomes. Nwafor (2019) in his study found highly positive impact of ICT on the administrative effectiveness of principals
in different areas of school administration. Similarly the study of Mwambo (2019) also highlights positive impact of ICT on relationship with administrative effectiveness of principals.

The current research is of great importance because it is based on the relationship of ICT with PAE. Since there are many dimensions of administrative effectiveness but the current research mainly focuses on communication and record keeping.

**References**


Nwafor, C(2020). Impact of information and communication technology (ict) on principals'administrative effectiveness in anambra state senior public secondary schools. Cletus nwafor, ba philosophy; pgde; m. Ed administration. 3-йисм, 98.


