

## **Impact of Using Digital Resources; One of the E-reforms by HEC on Enhancement of Quality of Social Researches at Postgraduate Level in Public and Private Universities in Sindh**

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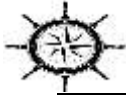
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### **Abstract**

*This study intends to examine the impact of using Digital resources on enhancement of quality of Social researches in public and private universities of Sindh. Researcher made five objectives to fulfill the purpose of the study. He framed five hypotheses based on the objectives to compare public and private universities in following the selected variables in order to measure the productivity of the digital resources. The nature of the research was causal comparative in which, researcher intends to examine the impact of already existed variable on other variables. Adopted research design was survey. Approach of the study was quantitative. Close-ended questionnaire based on 5 points likerts was the instrument for collecting the data. Population of the study was novice research scholars who were enrolled in postgraduate programs (Maters, MS/Phil and PhD) in departments of social sciences of private and public universities in Karachi after 2015. Adopted sampling technique was cluster sampling technique; one of the probability techniques. Sample size was 350 respondents. Data was analyzed statistically using inferential statistics for analyzing the hypotheses through using SPSS25. All hypotheses were accepted and proved that the provided facility of digital resources impacted the social researches significantly. It improved the quality of research articles of the novice researchers. It also helped in enhancing the research skills of researchers by providing international exposure.*

**Key Words:** E-Reforms, Digital Resources, Archives, Database, Social Research

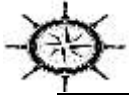


## Introduction

Researchers in Pakistan Especially novice researchers in academia were seemed in trouble for obtaining the theoretical and literature support from the globe for their studies. They worked locally with their own understanding without having true empirical understanding. They had to do their research works in isolation; HEC observed and felt the need of inclusion of ICT in the research work. In this regard, Higher Education Commission (HEC) Pakistan made a comprehensive E-reform to reduce the digital divide and to provide digital resources for research through higher education institutions across Pakistan, in achieving future prosperity (HEC, 2007) the reform was comprised over several facilities. . Higher Education Commission has initiated a number of programs which ensure sustainable and progressive research culture. This includes Research Grants, Resource Grants, Travel Grants, Enhanced IT Infrastructure, Digital Resources, etc. This has not only enhanced the quantity and quality of research activities in public and private universities but has also increased research output in international impact factor journal tremendously (HEC, 2010-11). The researchers intended to examine the impact of use of digital resources on the enhancement of quality of the research.

### Digital Resources

Digital Resources are the materials that are conceived and created digitally or by converting analogue materials to a digital format. Databases, books, journals, newspapers, magazines, archives, theses, conference papers, government papers, research reports, scripts, and monographs in a digital form are included in to digital resources. According to Kaladhar et al. (2018) "The Digital resources are those resources that deals with both born electronic and digitized material which can be either accessible from library's in-house database or from the World Wide Web". Information available in electronic format at any websites, software, apps that are included in an online course to enhance learning The Library's Digital Resources collections encompass online resources that are hosted elsewhere, physical format publications, digital media files and born-digital resources. The Library also makes digital copies of its unique heritage materials available to users through its digitizing programs. The Library provides access to digital information resources in preference to collecting other

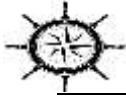


forms containing similar information. The Library's online resources include journal collections, newspapers, electronic books, individual electronic journals and magazines, bibliographic indexes, directories and guides. Online journal collections are strength and there is an intention is to expand the electronic book collection. There are many examples of digital resources. Some examples include teachers implementing online assessments, engaging video-based content, and turning online research into a single lesson.

### **Use of digital Resources**

“Use of digital resources is now part of research work. It is observed, that today most of the educational research carried out is conducted on the World Wide Web (Manan et al., 2019).” The speed of availability and the ease of accessibility of information make the faculty members preferred to use digital resources more frequently that enhance their capability (Mulla&Chandrashekara, 2017).The digital revolution of the twentieth century has turned world into the information society. With new challenges and issues all aspects of life are now in constant change. The same is for research and Development (R&D). Research is a highly specialized activity that seeks information from different resources for initiating, managing and sustaining positive change. Digital resources provide easier access to knowledge and information. “The Internet have had their most dramatic impact in terms of the dissemination of data , making readily available material that has after been difficult to access previously ,whether because of limitations of geography, expense or membership of relevant bodies”(Matusiak, 2017).Further “The Internet and virtual communities offer a very wide space of research. Text can be downloaded, people can be contracted, and sites can be thoroughly analyzed (Ameen. & Gorman, 2019).

The source and nature of data available for social science research is changing. The concept of “digital resources” is old in the modern world but the HEC has taken the initiative of E-reforms newly and made arrangements of providing various kinds of means to access digital resources. Establishment of “National Digital Library Program” is a unique example of a national-level electronic library from the developing world, Pakistan research repository, facility of video conferencing and arrangement of accumulation of scattered digital resources for the scholars and researchers. The main purpose of HEC is to make the universities of Pakistan world-class centers of education, research, and development. HEC's E-reforms is a



fundamental initiative aimed at facilitating the scholars and researchers in order to achieve excellence in higher education.

### **Statement of the Problem**

HEC has provided the E-reforms for facilitating the researchers as well as to enhance the quality of social researches. HEC believes that quality in researchers and researches may bring quality in learning and quality changes in education system. Among them the availability of the digital resources and researchers' access to them without any discrimination is the great mercy for the academicians. The research intends to measure the rate of impact of availability of digital resources and academicians access to them on their ability to link their researches to the international paradigm comfortably as well as the quality of their researches by adding, content, methods and technique as well as comparing the findings in order to measure the productivity of provided facility.

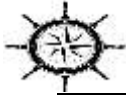
### **Significance of the study**

The study was conducted in setting tertiary level to collect facts inductively from the research environment at tertiary level. Researcher hopes that the findings are helpful in presenting empirical implications to improve, extend and upgrade the initiative taken by HEC for bringing E-reforms at higher education. It plays a significant role in enhancing the awareness about the E-reforms especially digital resources. It is expected that the study may contribute to the local as well as international empirical literature. The findings are significantly useful for the given stake holders in order to upgrade and extend the brought E-reforms in Pakistan:

- Academicians
- Organizations
- University Administration
- HEC Officials
- Researchers

### **Objectives of the Study**

1. To measure the rate of availability of digital resources.
2. To measure the rate of academicians' access to the digital resources.
3. To measure researchers' ability to link their researches to the international paradigm.
4. To examine the quality of researches because of adding, content, methods and technique



5. To measure the productivity of provided facility of digital resources.

### **Research Question**

1. Do digital resources impact the quality of researches as well as enhance the skills of novice researchers in public and private universities in Sindh?

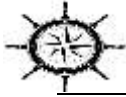
### **Research Hypotheses**

1. Private sector universities are significantly different to public sector universities in availability of digital resources.
2. Private universities' Academicians are significantly different to Public sector universities in accessing to the digital resources.
3. Private universities' Researchers are significantly different to Public sector universities in their ability to link their researches to the international paradigm
4. Private sector universities are significantly different to public sector universities in producing good quality of researches by adapting content, methods and techniques from the digital resources
5. Digital resources are significantly productive in improving the research culture in public and private universities.

### **Literature Review**

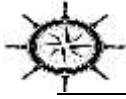
HEC started this programmed in February, 2004, with subscriptions to eight databases, with the assistance of the UK's International Network for the Availability of Scientific Publications (INASP), in association with the execution of their Programmed for the Enhancement of Research Information (PERI) (Punjab University Library.

The databases are mostly focused on science and technology, and include peer reviewed journals and abstracting services. Other resources include subject and multidisciplinary databases, resources in social sciences and humanities, e-books that use the McGraw-Hill platform, Oxford University Press and Taylor and Francis journals and reference works, and open-access e-books and journals. The HEC has acquired e-resources using a consortium. Since 2004, thirty databases have become available, and users have access to more than 24,000 e-journals and 45,000 e-books in different disciplines (Higher Education Commission of Pakistan). HEC's e-reform is quite successful and statistic indicates the ever increasing utilization of digital resources. "In 2006, the total downloaded article from HEC National



Digital Library program was more than 2.2.Million (The News 2007). The usage highlights that, The University of Karachi has the highest number of downloaded (91,989), of which the majority ( over 75,000) are from a single research institute ( Research Institute of Chemistry ) followed by Quad-e-Azam University Islamabad, University of Punjab , Lahore (66,885) University of Faisalabad (55,410) and University of Technology management sciences tops the list with 83,882 downloads.(HEC 2007).

Digital information has become a vital resource in the development of higher education. The increasing growth of the Internet and the web has engendered education in a learning environment that is based on instant communication and the ability to explore an extensive range of resources. Arms (2000), states that electronic information has gradually become a major resource in many universities in recent years with its growth and diversity, especially e-journals having led many to predict the extinction of the printed journals. The growing preference to electronic information in place of the print media in higher education institutions (HEIs) means that both academic staff and student must utilize those resources for better research output McGill & Toms (2001). The range of electronic information resources is considered as an outgrowth of the changes in information delivery, made possible through advances in both computer technologies, and user friendly Graphical User Interfaces (GUIs) (Fecko, 1997). Bland ford & Buchanan (2017) consider it as a new paradigm that is sweeping scholarship with a number of advantages over print based sources. Consequently, different disciplines and subject areas show significant divergence in the types and uses of digital resources .The emergence of the digital era has ushered in a global facilitation of access to information through the use of computers, Internet and the networked environment as well as improved academics' appreciation of the research process (Bashir et al.2017).The higher education (HE) system in some countries of the Africa has witnessed the adoption and application of digital resources and as expressed by Abu Bakar et al. (2018), they have provided platforms for accessing and utilizing information to enhance research productivity across faculties. It is evident that adequate provision and effective utilization of the resources for achievement of institutional goals are essential. The researcher has studied sum of three developing countries' universities and the social science researchers to examine and determine the availability and access to digital resources and how their incorporation benefits

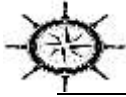


the faculty members for teaching, learning and research purposes. He also studied the status of digital resources utilization by social science researchers in different universities. The study therefore seeks to determine the effectiveness of utilizing the digital resources by exploring the availability and access to major sources of digital information resources by the social scientists in the three universities. It is now important to explore the interaction of researchers with digital resources and confining to Universities of social sciences. Various experts mentioned in their studies that developing countries have various kinds of challenges. Nwabueze & Urhiewhu ( 2017) from Nigeria say that Challenges are expected towards the accessibility of Digital information resources in the libraries and resource centre are irregular power supply, non-availability of online databases, lack of formal training in Internet skills among students, slow bandwidth, network problems and server slowness.

When somewhere reforms are introduced the challenges are expected towards the properly availability and accessibility of Digital resources in the centers and libraries (Blandford, & Buchanan, 2017). These are factors that spoil the effort of any reform. Asemi et al. (2017) advise that Institutions should be aware of the real challenges and their causes for maintaining and upgrading the facilities and services those they provide to the people. Researchers collect the empirical evidences from the real situation of the phenomena and give them practical implications to solve the problem or to enhance the current status of the facility or services. In this regard Pakistan has formed Social Sciences and Humanities Research Council of Pakistan (SSHRCPP) with the responsibilities of identifying realities of diverse social and human issues faced by Pakistan. It initiates plans for social transformation besides building knowledge and expertise on key social and cultural issues. It also encourages and assists Social Scientists and Researchers in carrying out meaningful research for national benefit. (HE Annual Report, 2012). The undertaken study is an effort of exploring the facts for the institutional strategic plan as well as of contributing to the bigger part of the research.

### **Research Methodology**

The nature of research was causal comparative. They intended to study the impact of already existed variables on the dependent variables. They did not make any kind manipulation. The approach of the study was quantitative so he used statistical tools to collect the data. They

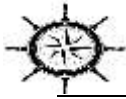


adopted survey research design. Accessible Population of the study was novice research scholars who were enrolled in postgraduate (Masters, MS/Phil and PhD) in departments of social sciences of private and public universities in Karachi after 2015. Researcher selected the sample from the population for conducting the study. For selecting the sample, he followed probability sampling technique. They used cluster sampling technique for selecting universities as cluster. They then adopted simple random sampling for selecting the respondents. They followed the chance procedure only instead of using his own judgments; one of the probability technique. Sample size was 350. Teddlie (2007) says Random selection makes the possibility of inclusion of maximum elements of the population. Every element can be included using chance only. No criteria can be made for selecting the sample. He selected 350 novice researchers as samples who were enrolled as postgraduate students in different departments of public and private universities randomly from the determined population.

As research instrument, he developed Close-ended likerts questionnaire based on 5 points. The items of the instruments were derived from the hypothesis. Questionnaire was taken as scale; several groups of items explained the relationship of the determined causal relationships among the already existed variables in order to explore the research problem. Credibility of the instrument was maintained by obtaining coefficient of reliability .877 and coefficient of validity.859

They administered the likert scale to both groups to collect the evidences of their experience and perceptions for availability of digital resources and its impact on the abilities of the researchers and quality of researches. Researcher visited the randomly selected clusters where he requested the authorities to get permission for conducting the study. After getting the permission he selected the sample randomly in each cluster. Then he conducted a meeting with respondents. After getting their consent for being the part of the study he gave them the questionnaires and gave them 15 days' time to accomplish it but he has to go to them several times. Most of them return the questionnaires properly some of them either did not return the questionnaire or returned improperly filled in. it took more than a month.





### Discussion and Analysis

In e-reforms, HEC made arrangements to provide novice researcher the digital resources for facilitating them in writing research as well as improving quality of their research. The variables of the study are availability of digital resources, academician's access to the digital resources, ability to link their research with international paradigm and Production of good quality of researches by adapting content, methods and techniques from the digital resources. These variables were compared in context of Public and private universities. This E-reform was the good initiative. Measurement of its efficacy is necessary to keep it continue or making improvements if they are necessary. Researcher does this effort to present empirical report to present true picture about the condition of the reform. He obtained the data through the likert scale. Numerals was used to convert the perceptions and experiences into numerical data in order to make it measurable statistically then analyzed four hypotheses by employing ANOVA and one hypothesis was analyzed by employing one sample t-test to make credible inferences and presented to discover the underlying facts and making useful prediction about the variables and population. He employed SPSS25 to analyze the data using ANOVA and one-sample t-test. Besides these test, he obtained reliability and construct validity by using the SPSS25.

#### Hypothesis 1

**Table 1**

*Difference of Public and Private Universities in availability of Digital Resources*

Sources of variance	Sum of Squares	df	Mean Square	F	Sig.
(01)	(02)	(03)	(04)	(05)	(06)
Between Groups	6369.572	1	6369.572	351.251	.000
Within Groups	6275.751	348	18.134		
Total	12645.323	349			

p\*\*<0.01

The table 1 presents result of Analysis of Variance (ANOVA) for testing the hypothesis *Private sector universities are significantly different to public sector universities in availability of the digital resources*. In this regard, the table contains sources of variance in first column. Sum of squares of the groups are presented in Second Column these values are



the total variance. The values of 6369.572 and 6275.751 are the variances of between groups and within groups. The df (degrees of freedom) are existing in third Column. For between groups, df is 1 and for within groups, df is 348. Fourth Column of the table contains the mean squares that are found by dividing them with their respective df. F-statistics is seen in the fifth Column that is got by dividing “mean square” between groups by “mean square” within group i.e. 6369.572/18.134. Found F statistics is 351.251. The found F-statistics is significant enough that suggests, the achieved findings are significantly valid. Significance level is determined in sixth Column that is below 0.05 as p-value is 0.00, so the findings are significant and leads the researcher to reject the null hypothesis in favor of the alternative hypothesis

Researcher found between groups variance is higher than the within group variance in the analysis that elucidates that the data has lesser error thus he has confidently accepted the alternative hypothesis that *Private sector universities are significantly different to public sector universities in availability of digital resources.*

### Conclusion

Availability of digital resources attracts the novice researchers and maximizes their curiosity. They gain input in their specific social or educational area for the research as well as in the skills of research. Availability of the digital resources encourages academicians for learning research. Empirical evidences of different phenomena Stimulates their interest about issues and anticipated findings. Comparatively the private sector universities were seemed more enthusiastic and systematic in providing the academicians the digital resources

### Hypothesis 2

**Table 2**

*Difference of academicians of Public and Private Universities in accessing the Digital Resources*

Sources of variance	Sum of Squares	df	Mean Square	F	Sig.
(01)	(02)	(03)	(04)	(05)	(06)
Between Groups	6225.369	1	6225.369	362.532	.000
Within Groups	5975.253	348	17.172		
Total	12200.604	349			

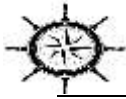
p\*\*<0.01



The table 2 presents result of Analysis of Variance (ANOVA) for testing the hypothesis *Private universities' Academicians are significantly different to Public sector universities in accessing to the digital resources*. In this regard, the table contains sources of variance in first column. Sum of squares of the groups are presented in Second Column these values are the total variance. The values of 6225.369 and 5975.253 are the variances of between groups and within groups. df (degrees of freedom) are existing in third Column. For between groups, df is 1 and for within groups, df is 348. Fourth Column of the table contains the mean squares that are found by dividing them with their respective df. F-statistics is seen in the fifth Column that is got by dividing "mean square" between groups by "mean square" within group i.e.  $6225.369/17.172$ . Found F statistics is 362.532. The found F-statistics is significant enough that suggests, the achieved findings are significantly valid. Significance level is determined in sixth Column that is below 0.05 as p-value is 0.00, so the findings are significant and leads the researcher to reject the null hypothesis in favor of the alternative hypothesis. Researcher found between groups variance is higher than the within group variance in the analysis that elucidates that the data has lesser error thus he has confidently accepted the alternative hypothesis that *Private Universities' Academicians are significantly different to Public sector universities in accessing to the digital resources*

### **Conclusion**

Smooth, easy and fast access to digital resources motivates the novice researchers in maximizing their knowledge of domain and skills in the research area. It also plays a significant role in enhancing their curiosity. Access to the digital resources encourages academicians for learning the research skills. Empirical evidences of different phenomena Stimulates their interest about issues and anticipated findings provokes their thought process. Comparatively the researchers from the private sector universities had better access to the digital resources and were seemed more enthusiastic and systematic in accessing the digital resources.



### Hypothesis 3

**Table 3**

*Difference of Researchers' ability of Public and Private Universities in linking their researches to international paradigm*

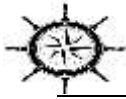
Sources of variance	Sum of Squares	df	Mean Square	F	Sig.
(01)	(02)	(03)	(04)	(05)	(06)
Between Groups	6428.268	1	6428.268	381.228	.000
Within Groups	5868.238	348	16.862		
Total	12296.506	349			

p\*\*<0.01

The table 3 presents result of Analysis of Variance (ANOVA) for testing the hypothesis *Private universities' Researchers are significantly different to Public sector universities in their ability to link their researches to the international paradigm*. In this regard, the table contains sources of variance in first column. Sum of squares of the groups are presented in Second Column these values are the total variance. The values of 6428.268 and 5868.238 are the variances of between groups and within groups. df (degrees of freedom) are existing in third Column. For between groups, df is 1 and for within groups, df is 348. Fourth Column of the table contains the mean squares that are found by dividing them with their respective df. F-statistics is seen in the fifth Column that is got by dividing "mean square" between groups by "mean square" within group i.e. 6428.268/16.862. Found F statistics is 381.228. The found F-statistics is significant enough that suggests, the achieved findings are significantly valid. Significance level is determined in sixth Column that is below 0.05 as p-value is 0.00, so the findings are significant and leads the researcher to reject the null hypothesis in favor of the alternative hypothesis. Researcher found between groups variance is higher than the within group variance in the analysis that elucidates that the data has lesser error thushe has confidently accepted the alternative hypothesis that *Private Universities' Researchers are significantly different to Public sector universities in their ability to link their researches to the international paradigm*

### Conclusion

Availability of digital resources and opportunity of Smooth, easy and fast access to them motivates them to explore new domain of researches as well as empower them to generate new ideas. They learn from various kinds of research related literatures. Enhance their



capabilities as well as refine their skills. They have got many ideas to conduct research in local context to explore the phenomena with new way.

#### Hypothesis 4

Table 4

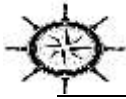
*Difference of Public and Private Universities in Producing Good Quality of Researches by Adapting; Content; Methods; and Techniques from the Digital Resources*

Sources of variance	Sum of Squares	df	Mean Square	F	Sig.
(01)	(02)	(03)	(04)	(05)	(06)
Between Groups	6619.279	1	6619.279	384.564	.000
Within Groups	5986.149	348	17.215		
Total	12605.458	349			

$p^{**} < 0.01$

The table 4 presents result of Analysis of Variance (ANOVA) for testing the hypothesis *Private sector universities are significantly different to public sector universities in producing good quality of researches by adapting content, methods and techniques from the digital resources*. In this regard, the table contains sources of variance in first column. Sum of squares of the groups are presented in Second Column these values are the total variance. The values of 6619.279 and 5986.149 are the variances of between groups and within groups. df (degrees of freedom) are existing in third Column. For between groups, df is 1 and for within groups, df is 348. Fourth Column of the table contains the mean squares that are found by dividing them with their respective df. F-statistics is seen in the fifth Column that is got by dividing “mean square” between groups by “mean square” within group i.e. 6619.279/17.215. Found F statistics is 384.564. The found F-statistics is significant enough that suggests, the achieved findings are significantly valid. Significance level is determined in sixth Column that is below 0.05 as p-value is 0.00, so the findings are significant and leads the researcher to reject the null hypothesis in favor of the alternative hypothesis

Researcher found between groups variance is higher than the within group variance in the analysis that elucidates that the data has lesser error thus he has confidently accepted the alternative hypothesis that *Private sector universities are significantly different to public sector universities in producing good quality of researches by adapting content, methods and techniques from the digital resources*.



## Conclusion

It is evident that various kinds of literature available on digital resources include diversity in knowledge, skills and information. Having access to all of them enables the scholars an expert researcher. It reveals such things on the academicians those are not available in local literature as well as in local phenomena. It also increases the vocabulary which is specifically used in the researches. It also motivates the novice researchers for moving forward to explore the new worlds, and for doing more rigorous researches

## Hypothesis 5

**Table 5**

Statement	One-Sample Statistics			
	N	Mean	Std. Deviation	Std. Error Mean
Digital resources are significantly productive in improving the research culture in public and private universities	350	94.62	1.126	.156

*Note: this table demonstrate the statistics of one sample t-test; Mean=94.62, SD=1.126*

The table 5 represents statistics of test. Hypothetical stamen is in the first n column 1. In second column the Sample size is given, that means N= 350. Obtained Mean is in third column. Standard deviation is in the fourth column. Standard Error of Mean is in the fifth column. In third column, obtained mean is 94.62. In the fourth column, standard deviation is 1.126. In the sixth column, obtained standard error of the mean is .156. The table shows that obtained mean 94.62 is greater than hypothesized mean. And variance in the data is not much greater as its standard deviation is 1.126. The data has less error as its error of the mean is smaller enough.

## Conclusion and Recommendation

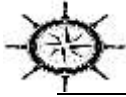
It is concluded that the social and educational researches are not something vague and haphazard and irrelevant activity instead it is scientific, systematic obvious and rigorous mode of inquiry intends to discover reality and link with the reality. It also links the societies of globe and enables the researchers to see the local context in to global context and also enables them to find multiple solutions. This skill is developed in the researchers because of observing diverse phenomena by using the digital resources. Only reading of the related



literature and updated research work can enhance the intellect and exposure of the social phenomena it also makes the local research part of international research work as well as includes the local researcher into global community. HEC's e-reforms are significant initiative for bringing the excellence in work of local researchers. These reforms are the beginning but needs more work on them.

The researcher has some recommendations for maximizing the benefits of using the digital resources:

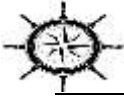
1. HEC should expand the sphere of the facility of the digital resources by involving different institutions.
2. Government should make arrangements to provide access of digital resources to all educated people for conducted social and business research
3. Government should enhance the students' awareness regarding international research literature in enhancing their reflective thinking and analytical reasoning
4. Government should make arrangement to maximize the researchers' access to the digital resources by increasing numbers of centers and enhancing their working timings
5. Government should provide students small loans on easy installments so that they purchase the devices required in accessing the digital resources
6. Government should arrange some trainings essential in using the devices for accessing the digital resources
7. Philanthropist should be requested to be involved in making arrangements of availability of digital resources. They can provide the facility at minimal cost.



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