



# RESEARCH INTO DIGITAL ACCESSIBILITY AND LITERACY AMONG SCHOOL TEACHERS IN PUNJAB

**Research Report** 



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## Acronyms

DAL	Digital Accessibility and Literacy
CQE	Campaign for Quality Education
CPD	Continuous Professional Development
DSD	Directorate of Staff Development
DTE	District Teacher Educators
DTSC	District Training Service Center
IDI	In-depth Interview
ІСТ	Information and Communication Technology
IT	Information Technology
кіі	Key Informant Interview
MoU	Memorandum of Understanding
MT	Master Trainers
OOSC	Out of School Children
PD	Professional Development
PMIU	Punjab Management Information Unit
PEELI	Punjab Education and English Language Initiative
PERSP	Punjab Education Sector Reform Programme
PST	Primary School Teacher
QAED	Quaid-e-Azam Academy for Educational Development
SAHE	Society for the Advancement of Higher Education
SED	Schools Education Department
SLO	Students' Learning Outcome
SPSS	Statistical Package for the Social Sciences
OOSE	Out of School children
UNICEF	United Nations International Children's Emergency Fund



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## **Executive Summary**

In an effort to improve the dismal picture of education in the Punjab province through improved teaching quality, child centered approach and appropriate choices about language, Quaid-e-Azam Academy for Education Development (QAED), and British Council initiated PEELI involving head teachers, teacher trainers and school teachers. By 2019 PEELI aims to have helped an estimated 250,000 primary school teachers, teacher trainers and head teachers to reach their potential and develop the knowledge and skills required to deliver world class teaching in Punjab. The under discussion exploratory research was an offshoot of PEELI's initiative; the study was primarily undertaken to inform possible future non-traditional professional development opportunities through exploring digital accessibility and IT literacy among primary school teachers.

In order to collect first-hand, field based and region-specific information, a mixed approach (survey for quantitative data; interviews for qualitative data) was designed for which a total of 12 districts of Punjab were selected using stratified random sampling technique. Within district, urban-rural stratification is used. A total of four districts, excluding major urban center, were targeted per region, each from high, middle and low tier respectively to cover the variability of education sector performance<sup>1</sup> within each region. In comparison to rural ones, urban schools are expected to be more developed, in terms of infrastructure and providing better opportunities to teachers for professional development. This disparity has been addressed through selecting sample schools proportionate to the number of urban and rural primary school respectively in each district. At the level of urban-rural strata, sample primary schools were selected randomly.

For primary data collection using survey, a total of 17 primary schools per district were reached; a total of 408 teachers were reached through targeting 2 teachers per school. In addition to this, 12 Head teachers and 12 primary school teachers (PSTs), one per district, each, were reached for their detailed interviews to explore the in-depth information. Moreover, as key stakeholders, PEELI master trainers and course Coordinators from QAED were also interviewed for an external perspective and to understand contextual understanding. The respondent groups include half male and half female teachers. About one third of the respondent population (34% Male; 39% Female) fall in the age bracket of 25 to 30 years. And approximately on third (37%) have a Masters degree while almost similar proportion have experience of 0 to 5 years of teaching.

The data specifically related to schools, digital accessibility landscape in Punjab does not reflect a very optimistic picture. Though almost all of the teachers (94%) have an access to personal mobiles, out of which two third (72%) own an android based smart phone. Only about one tenth (14% and 15%) have an access to desktops and laptops at homes. Again, though more than four fifth (88%) claim to have an access to available digital facilities in schools however approximately two third (76%) translated this as access to tablets in schools. It is pertinent to note that qualitative data clearly reflect that these tablets remain in custody of either head teacher or the class in charge of grade 3, for whom these tablets are primarily used. While no other teacher can usually access or use these tablets. Whereas in high schools with computer labs hardly any primary teacher can access the computers; this is attributed to various reasons

<sup>&</sup>lt;sup>1</sup> Source: District ranking Third Quarter, 2017/18, extracted from ttp://www.pesrp.edu.pk/datacenter



including trust issues, apparent lack of integration of ICT in curriculum, ownership issues of head teachers etc. Moreover, internet is a consistent challenge at most of the school locations; unless the high school labs have a high-speed internet device, the teachers feel pushed to use their mobile data for internet.

The data gathered for digital literacy verifies the same grim picture; owing to lack of opportunity to practice on computers, the PSTs do have a basic skills and internet however the percentage decreases as the skill set level gets higher. Half (52%) of the PST respondents have attended the induction training covering ICT module while a little more than half (61%) of them mentioned that these trainings covering beginner (introductory) level skills. In addition, two third (73%) of the respondent population have an email ID where almost half (48%) use that email for social networking purposes. This is further augmented by the information that majority (77%) of the respondents use their mobiles for communication purposes only whereas more than four fifth respondent population (86%) use Facebook. More than two third (78%) have experienced using Microsoft Office however the intermediate level skills however majority of the respondents during interviews mentioned that they hardly use computer. In case need arises, they depend on the technological support at school or home. The lower level skills remain unused owing to lack of access to digital technology. Again, more majority (87%) claimed to have an experience of using content sharing sites however hardly one third (37%) know how to make account on content sharing sites.

Given this context if the digital technology is introduced for professional development, half (49%) of the respondent teachers feel that the plausible challenges will include power shortage, lack of capacity, infrastructure and time. Further to this the responses clearly reflect respondents (86%) are fully aware of the plausible positive impacts of use of technology on teaching and learning however more than four fifth (88%) of PSTs prefer face to face method of training over any other non-traditional method. This clearly indicates that they are conscious of their realities in field.

The study quite explicitly suggests that unless the accessibility to resources is ensured, no amount of training and availability of resources can help improve the teaching methods. For professional development of teachers, it is important to make use of already available resources with a holistic approach where all opportunities in terms of available smart mobiles, knowledge of making audios and videos and using communication applications need to be considered along with the field realities and challenges in terms of lack of capacity and time, internet and power shortage etc. One of the Asian Development Bank project in Bangladesh (teaching quality improvement in secondary education project<sup>2</sup>) have made use of mobile technology. The model, as best practice, can be adapted suiting to our context and a blended learning model for teachers' professional development may be developed. It is important to integrate use of ICT at all levels of teaching and learning otherwise only trainings might not be helpful. This kind of intervention needs a policy shift at macro-level for further research and insights might be required.

<sup>&</sup>lt;sup>2</sup> https://www.adb.org/projects/26061-012/main



## **Chapter 1: Background**

Dismal state of Pakistan's education system received considerable attention nationally and internationally in the past two decades. Poor state of government schools' infrastructure and teaching quality has been most prominent of criticisms. Inadequate access to education, high numbers of out of school children (OOSE), low student retention and alarmingly poor learning outcomes and teacher performance were a result of neglect over the years.

In 2010, Article 25-A of Pakistan's constitution was created that stated "The State shall provide free and compulsory education to all children of the age of five to sixteen years in such manner as may be determined by law'. Soon after authority for education service delivery was devolved to the provinces.

Out of the four provinces, the Punjab successfully reduced teacher absenteeism, took measures to improve teacher quality, school infrastructure, and provided support to low-cost private schools and textbook distribution through The Punjab Education Sector Reform Programme (PESRP). Several systemic changes were also introduced to revamp the structure of Education Department and Directorate of Staff Development (DSD) now known as Quaid-e-Azam Academy for Education Development (QAED) to ensure quality of teachers is enhanced and accountability measures are in place.

Among other reforms, in 2009, the Punjab government changed the medium of instruction to English language in schools for grades 1-12. The decision was repealed and modified to use English as medium of instruction for grades 4-12. Government school teachers were however, ill prepared for the change and continued to use Urdu to communicate in classrooms to teach all subjects including the English language itself according to the PEELI and Society for the Advancement of Higher Education (SAHE) and the Campaign for Quality Education (CQE) report titled Policy and practice: teaching and learning in English in Punjab schools. In addition to this, in 2009, the Punjab Government also launched Punjab IT lab. Under this project 4286 computer labs were established in public secondary and higher secondary schools. More recently in 2016, the Punjab Government introduced smart labs and multimedia classrooms with an aim of digitalizing methods of teaching along with self-learning of teachers.

In spite of the reforms, students' learning outcomes, though improved, remain insufficient especially in mathematics, science and English. Teachers' inability to teach English and use the language to communicate with their students in class poses additional challenge in the way of improving SLOs.

The education system in Pakistan faces the challenge of providing students with all the key competencies necessary to participate fully in a globalized society. As a contribution to developing these key competencies, the British Council (BC) and the Quaid-e-Azam Academy for Educational Development (QAED) have developed a professional development initiative for teachers, teacher trainers and head teachers – PEELI.

PEELI uses a holistic and experiential approach towards teacher education by providing professional development opportunities for these groups, such as formal training (face-to-face), materials development training, conferences and seminars, access to high quality digital and offline resources and other forms of Continuing Professional Development (CPD); PEELI's ultimate aim is to contribute to stronger student learning outcomes (SLOs).





#### Figure 1: PEELI's Theory of Change is illustrated.

PEELI's main objective on the path to achieving stronger SLOs, is improving the quality of primary school teaching. It seeks to do this by equipping teachers with the skills and knowledge they require to adopt a child-centered, activity-based approach and to make appropriate choices about the language of classroom instruction (Urdu/mother tongue and English). This helps to ensure that students' cognitive and linguistic abilities develop hand-in-hand, leading to improved learning outcomes - a pre-requisite for better life chances.

PEELI has six key components

Output 1	Professional development courses for Expert Trainers, Expert English Trainers,
	Primary School Teachers, and Head Teachers
Output 2	Standards and licensing for Teachers and Teacher Educators
Output 3	Training materials and resources for teachers and trainers
Output 4	Institutional capacity building (materials development)
Output 5	Monitoring and evaluation
Output 6	Research, policy and insight

By 2019 PEELI aims to have helped an estimated 250,000 primary school teachers, teacher trainers and head teachers to reach their potential and develop the knowledge and skills required to deliver world class teaching in Punjab.

The British Council has contracted DevTrio Consulting to undertake research into digital accessibility and IT literacy among school teachers in Punjab outside the main urban centers in order to inform possible future non-traditional (100% remote and blended) professional development opportunities. Thus, the purpose of this exploratory research study is to collect first-hand, field based and region-specific information related to PSTs' digital accessibility, IT literacy and possible future professional development opportunities in Punjab. The target audiences for this study will include but not limited to Quaid-e-Azam Academy for Education Development (QAED), PEELI and the British Council staff, School Education Department (SED) and other stakeholders.



## **Chapter 2: Literature Review**

The literature review is primarily focused on the following:

- Overview of teacher training and distance learning in context of Pakistan
- Initiatives taken for ICT integration with teacher training in a global and regional context
- similar initiatives aiming to integrate ICT with teacher training in Pakistan

Other literature related to beats practices, lessons and recommendations for effective and meaningful ICT integration with teacher training is also considered for a holistic picture.

i. Overview of teacher training and distance learning: Pakistan

Main issue of education system in Pakistan is dropout rate (Kelly, T., 2010). According to UNESCO UIS (2018), Dropout Rate is the "proportion of pupils from a cohort enrolled in a given grade at a given school year who are no longer enrolled in the following school year". Report on Annual School Census (2017-18) shows that all the grades from 1 to 10 have positive dropout rate except for grade 4 and 9 which showed negative dropout rate. Grade 1 and 10 showed highest dropout rate of 30% and 13%, respectively.

Apart from abject poverty being the main cause of contagious dropout rate, old fashioned and unattractive teaching method is the leading cause of dropout rates (Kelly, T., 2010). To improve teaching quality, improving teacher quality is a logical prerequisite. To improve teacher quality, teacher training plays the most important role. As one size does not fit all, every teacher's requirement, in terms of inservice training, is different. Therefore, professional development opportunities should be tailored and accessible according to individual teachers' needs. In this regard, Information Communication Technology (ICT) can play a very important role.

According to the Ministry of Federal Education and Professional Training (2017) in the National Education Policy states that in Pakistan, education is a provincial subject so qualification required to be a primary school teacher depends upon province, i.e. in Punjab, one-year degree in education after bachelor's degree is required to be primary school teacher. To compensate for poor quality foundation qualification, Pakistan government has taken many initiatives, at least at policy level, to improve the level and quality of teacher training.

Among many policy initiatives, Intel tech program was one of the earliest. It was launched in 2002, with collaboration between Intel and Government of Pakistan. Among many of its different courses; Thinking with Technology Course, Advanced Online Course, and Intel Teach Elements incorporated blended training modes for the teachers. Then MOU between Microsoft Corporation and Pakistan's Federal Ministry for a global program "Partners in Learning" (PiL) was launched in 2004. One of its aims was "Setting up a chain of PC labs in schools and Teacher Training Institutes" (Ministry of Federal Education and Professional Training, 2017). In 2006, Pakistan government introduced "National Information and Communications Technology (NICT) Strategy for Education in Pakistan" (Ministry of Federal Education and Professional Training, 2017). Its aim was to enhance teaching quality through use of ICT. Element 2 of NICT strategy stated, "Apply ICT to strengthen the quality of teaching and educational management: Use ICT to maximize opportunities for educators' continuous learning and to help educators understand and effectively use ICT" (Developed by Ministry of Education, Islamabad, in collaboration with Education Sector Reform Assistance (ESRA) Program, 2018). One of the goals stated by National Education Policy (2009) with regards to ICT integration in education was, "ICTs shall be used to strengthen the quality of teaching and educational management" (Ministry of Federal Education and Professional Training, 2017). Practical implementation of the policies stated above can be implemented through distance education model. It has the most potent tool in designing teachers' professional training in a way that addresses deficiencies in formal education system, along with making teacher training more suitably to personal needs at large scale. Distance education is most responsive to changing educational needs (Kelly, T.,



2010). In Pakistan, radio, television and internet are main components of distance learning model. After deregulation of telecommunication industry in 2004, institute of Educational Technology (IET) of Allama Iqbal Open University (AIOU) along with Virtual University of Pakistan (VUP) played major part in airing educational content on radio and television. AIOU uses mainly non-formal method of learning like traditional distance learning, traditional face-to-face learning, and blended learning. VUP uses ICT as its primary delivery mechanism, which include satellite channels for airing lectures and internet for teacher and professor interaction (Kelly, T., 2010).

ii. ICT integration with Teacher Training: Global and Regional initiatives In this section of literature review we will look at how ICT was used to strengthen teacher training at global and regional level. According to Jung (2005) digital technology is the most used ICT tool for teacher training. One example Jung (2005) quoted was of Virtual High School (VHS) in the USA. This school used internet-based ICT teacher training. Every participating school could enroll only 10 students per semester (20 students in total per year), after which one of the participant must join VHS as trainer. Teacher of participating high schools had two options at VHS, first was 26-week Teacher Learning Conference (TLC) and second was 15-week Netcourse Instructional Methodologies (NIM). The aim of TLC was to train a teacher to develop and teach a Netcourse. Aim of NIM was to train a teacher to teach an existing online VHS course (Jung, 2005). Main focus of VHS initiative was to keep internet as a main tool of content delivery. The role of course facilitators was pivotal to help teacher be comfortable with technology and better integrate technology with teaching (Freeman, 1997).

Other example Jung (2005) presented was of LearnLink project which was supported by USAID and AED. It adopted ICT as the core delivery means of teacher training. The project had implemented computer mediated professional development programs to improve training and support services for teachers in several developing countries i.e. Guatemala, Morocco, Namibia, Uganda and Brazil (Fontaine, 2000; Collis & Jung, 2003). This project intervention included establishment of computer labs for internet-based learning. Interactive multimedia course material and communication networking system was established to promote interaction between peers.

Robinson (2008) looked at the possible role of distance learning and ICT in improving access and quality of professional development for rural teachers in one province of western China through a right based framework. Teacher's Learning Resource centers were established at township level in Gansu province of China, serving cluster of 7 to 25 schools. These centers were equipped with two computers, a modem, laser printer, CD-player and writer, data storage items, TV, satellite dish and receiving software, and digital camera. Learning resources were provided too (audio and video CDs, books, and guides) together with furniture. Print-plus-video based five modules were produced locally, for teachers and three modules were developed for head-teachers. These modules were related to cross-curricular themes. According to Robinson (2008) this intervention made professional development more accessible for teachers and head teachers. This professional development initiative was more tailored to individual needs thus giving ownership to teachers and head teachers. One of the most important features of this continuous development initiative was its system-wide approach rather than a piecemeal approach disconnected from the system (Robinson, 2008).

In rural Nepal, Asian Development Bank (ADB) funded a regional technical assistance (RETA) study with the aim to assess whether the use of digital video recording and laptops enhance teacher training or not. This was done by providing digital video recorder and a laptop, in addition to routine teaching materials, to teacher trainers. There were three mobile teams of trainers. These teams were responsible for providing teacher training to primary school teachers at remote areas of rural Nepal. Research team conducted interviews with the trainers and questionnaire with the teacher trainees to assess the possible ways of using technology as a learning tool and its effect on learning outcome in context of teacher training. Data collected from the teacher trainees showed that trainees preferred learning through visual methods, improved content retention and attentive time span of teacher trainees as they



can re-watch lectures and had the sense of being recorded, improved teaching practices and confidence as they were able to watch themselves teach. All in all, the study showed that use of video in teacher training improved both qualities of training and learning outcomes (UNESCO, 2008) In rural Bangladesh a study was conducted to examine the potential for using telecommunication technology i.e. mobile technology, for professional development of secondary school teachers (UNESCO, 2008). Mobile technology was used as an aid to the traditional methods of distance learning i.e. printbased self-learning material and active learning techniques. As part of study, two subject trainers, a training coordinator and a cluster of 10 schools of the Barisal region (20 Bangla and Mathematics teachers) were given smartphones. Primary aim of this intervention was to assess the effectiveness of mobile phones in teacher training thus improving classroom practice, reaching teachers in remote rural areas and use in student assessment. Both trainers and trainees were very receptive to the use of mobile technology for professional development. Most prominent positives that teacher trainees highlighted were convenience, on-going communication with trainers and fellow teachers at other schools, and formation of learning community within schools which supported group discussion and self-learning. Head teachers reported that distance learning assisted by mobile technology resulted in implementation of new teaching methods by the teacher trainees as they immediately implement whatever they have learned during training.

#### iii. ICT integration with Teacher Training: Case of Pakistan

Retallick and Shamim (2005) investigated opportunities and problems regarding teacher training carried out through two or more electronic devices (also known as Computer Mediated Communication, CMC), at Aga Khan University, Institute for Education Development (AKU-IED). They identified two major issues; first is encouraging learner involvement and second is capturing learner interest through continuous collaboration with peers and interactive course content. They further explored different facets of CMC through a pilot study by designing CMC tasks to augment learning outcomes. Retallick and Shamim (2005) noted that interactive content and online discussion lead to knowledge sharing and construction which lead to deep learning. Exchanging ideas and learning material resulted in positive interdependence. Role of tutor also emerged to be the most important in designing progressively difficult tasks such a way that continuous learning is ensured in a way that every student benefit. Bashiruddin (2011) analyzed impact of ICT integration in English Language Education Learning at AKU-IED. ICT integration into teacher's professional development was done through reflecting on teaching English through developing and posting classroom video clips on-line for review, using Moodle discussion forum to exchange ideas and experiences in order to develop practices for microteaching. Bashiruddin (2011) reported three main findings regarding impact of ICT based on teacher's feedback. First was the self-directed learning through online discussion and feedback from peers and tutor, in flexible time. Second main finding was the learning through classroom observation online, seeing themselves and others teach online and exchange feedback to develop practices of microteaching. Third main finding was that teachers were able to give online feedback as giving face to face feedback could sometimes be difficult even if it was constructive feedback.

#### iv. Lessons Learnt

Internet based teacher training though not new but not that widespread, especially in developing countries. This method provides avenues for flexible and interactive learning. But costs associated with this approach cannot be ignored (Jung, 2005). In addition to this Jung (2005) gave variety of recommendations to better integrate ICT into teacher training. These recommendations could be summarized into three main themes. Firstly, cost-effective methods should be explored to integrate ICT into teacher training should be emphasized to make ICT integration more efficient and effective. Lastly, national and international cooperation both between public and private sector should be focused to achieve common goal of augmenting education attainment through improving teacher training with use of ICT.



Based on six basic principles Unwin\* (2005) proposed a framework for effective integration of ICT in teacher training program.

"A shift from an emphasis on 'education for ICT' to the use of 'ICT for education'; an integration of ICT practice within the whole curriculum; a need for integration between pre-service and in-service teacher training; a need for the development of relevant and locally produced content; a need for appropriate educational partnerships; and an emphasis on the development of sustainable costing models (Unwin\*, 2005)."

Favorable environment is needed to apply the above stated principles. Implementation will vary according to every country's specific context. Therefore, in addition to the six basic principles Unwin\* (2005) also identified required elements for proper implementation of ICT based teacher training. First was strategic leadership; ownership of the initiative at the highest level which will be national government and Ministry of Education. Second was the ownership and involvement of stakeholders, in addition to the government, in development of intelligible strategies and action plans. Third was integration with overall national ICT policies. Fourth was implementation plan should be in line with the current situation of infrastructure. Fifth was awareness raising workshops to the stakeholders i.e. administrators, government officials, training authorities, teachers, and head teachers about the real potential of ICT in teaching. Sixth was integration of ICT in teacher training from pre-service training and continuing through in-service training. Last was the support from the community i.e. private sector and civil society organizations.

British Council (2015) explored the access to digital technology and willingness to use it for availing opportunities of continuous professional development by English language teachers in South Asia Region. Radio, television, computers, mobile phones, internet and social media were considered different media of digital technology. British Council (2015) highlighted some of the key findings of the study, access to digital technology (mostly computers and mobile phones) and demand for English language and professional development is similar among the teachers surveyed. Sample of teachers in the study lacked digital and ICT skills, therefore need guidance to explore full potential of digital technology in context of professional development. Radio and television can be a powerful tool for raising awareness. Teachers surveyed showed preference for more interaction, collaboration and engagement with other colleagues during teacher training. Lastly due to lack of digital channels, pay per online options of professional development is not viable, so other means of payment of such courses should be devised.



## **Chapter 3: Research Methodology**

#### 3.1 Scope and Objectives of Study

Specific objectives of this exploratory research study were to:

1. Investigate digital accessibility and IT literacy among school teachers in Punjab outside of main urban centers.

1. Identify major problems along with additional problems related to areas identified in first point.

1.Identify root causes and its direct and indirect effects on the problems identified in the point above. Categorize these causes in terms of policy constraints, institutional constraint, capacity weakness and social or cultural norms.

1. Further segregate the problems and its causes and effects on the basis of gender and experience of teachers, standing of the educational institute and socio-economic factors.

1.Identification of problems and causes and effects related to main area of interest, namely digital accessibility and IT literacy, should be evidence backed and based on analysis of qualitative and quantitative data.

1. Use result tree, opposite of problem tree, to represent problem, cause and effects such that reworded problems as solutions will be regarded as recommendations.

1. Recommendations will follow SMART criteria (Specific, Measurable, Achievable, Relevant and Time Bound).

#### Figure 2: Study Objectives of Exploratory Research

The findings of this exploratory study will inform the PEELI staff of PSTs' feedback about digital accessibility, IT literacy and possible PD opportunities in the future. It will also highlight PSTs preferences of modalities of PD and impact of those on teaching methodology in classrooms. The study will also be helpful in designing future PD ventures (remote and blended) as it will detail the challenges teachers face while availing of PD opportunities and using the newly taught pedagogy in their classrooms. This research study will also inform its readers regarding the level and extent of support PSTs will require while effectively benefitting from innovative PD initiatives. Thus, this study aims to facilitate its readers and PEELI staff for project planning and implementation in future and explore feasible options of CPD for PSTs in Punjab.

#### **Research questions/areas:**

The study will specifically focus on PSTs' digital accessibility, connectivity with internet, support and training they got related to ICT, usage of technology in teaching to suit their professional needs. It will also record the basic IT literacy of PSTs related to computer and internet usage. The following aspects will serve as guiding questions and main focus:





Figure 3: Research Questions to be focused

#### 3.2 Study Design

Mixed method approach was used to design this exploratory research study to uncover qualitative and quantitative insights and findings. Methodological triangulation <sup>3</sup> and data triangulation<sup>4</sup> have been employed to facilitate validation of data through cross verification and enhance validity and reliability of data and its results of this research study.

Subsequently, research instruments included:

- a) a comprehensive review of available literature;
- b) relevant project documents/reports<sup>5</sup>;
- c) a survey of PSTs' to assess digital availability in schools and their respective digital literacy
- d) In-depth Interviews (IDIs) with PSTs (M/F);
- e) Key Informant Interviews (KIIs) will be conducted with Head teachers/school administration, the representative of QAED and DTEs to obtain research participants' perceptions of current challenges and opportunities in digital accessibility, IT literacy of PSTs

<sup>&</sup>lt;sup>3</sup> *Methodological triangulation: involves using more than one method to gather data, such as interviews, observations, questionnaires, and documents.* 

<sup>&</sup>lt;sup>4</sup> Data triangulation: involves time, space, and persons

<sup>&</sup>lt;sup>5</sup> Will include but not limited to the British Council's existing knowledge, including research reports and evaluations; research papers published in scholarly journals; strategies, guidance, evaluations (including impact assessments), independent reports, policy papers, and research and analysis by relevant and reputable public and private sector institutions-Departments of the Government of the UK, Department for International Development (DFID) and the Government of Pakistan and relevant digital content e.g. donor and OECD websites





Figure 4: Research approach at a glance

#### 3.3 Sampling Strategy

This sampling strategy was developed to access digital accessibility and IT literacy among primary school teachers in Punjab outside the main urban centers in order to inform possible future non-traditional (100% remote and blended) professional development opportunities. In order to reach a representative sample size of primary school teachers of Punjab, the approach of *stratified random sampling*<sup>6</sup> was adopted. Sample size and characteristics of respondent teachers to be surveyed were selected in a way that it is statistically representative and all variables are accounted for, which are expected to affect our main variables of interest i.e. digital accessibility, IT literacy and non-traditional professional development opportunities.

**Basis of stratifications:** Education quality, teaching quality and infrastructure, are expected to vary in various geographical regions mainly dependent on the development index of the area. To account for this variability, province Punjab was further divided into three geographical regions i.e. Northern, Central and Southern Punjab. Further each region will be stratified into districts according to their ranking as done by School Education Department (Punjab) on the basis of various indicators<sup>7</sup>. Within district, urban-rural stratification is used. Sample primary schools will be randomly selected within each urban-rural stratum.



Figure 5: Geographical division of Punjab Province for Sampling

 $<sup>^{6}\</sup> https://www.investopedia.com/terms/stratified\_random\_sampling.asp$ 

<sup>&</sup>lt;sup>7</sup> https://schools.punjab.gov.pk/district\_ranking



A total of four districts, excluding a district with major urban center, were targeted per region, each from high, middle and low tier respectively to cover the variability of education sector performance within each region. Identified districts in all three regions of Punjab are mentioned in the matrix below against their ranking as done in 3<sup>rd</sup> quarter of FY 2017-18.

Selection of Schools as Primary Sampling Units: In addition to district stratification, each district was further stratified based on rural and urban areas. Compared to rural schools, urban schools are expected to be more developed in terms of infrastructure and providing better opportunities to teachers for professional development. To account for this variation sample schools within each district were selected proportionate to the number of urban

Region	District	Ranking
North	Attock	4
Punjab	Chakwal	12
	Sialkot	18
	Gujrat	33
Central	Sahiwal	5
Punjab	Faisalabad	22
	Nankana Sahib	27
	Sheikhupura	36
South	Khanewal	8
Punjab	Muzaffargarh	10
	Lodhran	23
	D.G. Khan	28
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Source: District ranking Third Quarter, 2017/18, extracted from ttp://www.pesrp.edu.pk/datacenter

and rural primary school respectively. At the level of urban-rural strata, sample primary schools will be randomly selected.

#### 3.3.1 Sample Size:

Considering the descriptive (Descriptive studies include surveys to assess prevalence) nature of the study and outcome will be categoric variable (it can be of three types, two categories only (binary variable), multiple categories where order does not matter (nominal variable) or multiple categories where order does matter (ordinal variable). Categoric variables are usually summarized with proportions). Yamane (1967)<sup>8</sup> provides

**Inter District Sample Distribution** 

- 2 PSTs per school
- 17 School per district
- 34 PSTs (17F/17M) per district

a simplified formula to calculate sample sizes, where research is descriptive and outcome is categoric variables.

$$n = \frac{N}{1 + N(e)^2}$$

Where n is the sample size, N is the population size, and e is the sampling error. At 95% confidence level, 5% sampling error and population size (total primary schools in Punjab) of 36133. Sample size is  $n = \frac{36133}{(1 + 36133(0.05)^2)^2} = 399.9889 \approx 400$ 

Thus, a total of 400 teachers were surveyed. This sample of 400 teachers were equally divided among male and female teachers to get gender-balanced representation.

<sup>&</sup>lt;sup>8</sup> Yamane, Taro. 1967. *Statistics, An Introductory Analysis*, 2nd Ed., New York: Harper and Row.



#### 3.3.2 Intra-District Distribution of Sample:

Based on the proportion of schools in rural and urban areas of the selected districts, 17 schools per districts were randomly selected. For example, in Attock, 6.35% of total primary schools are urban schools ([54/850]\*100) while 93.65% are rural schools ([790/850]\*100). Therefore, in order to divide sample of 17 primary schools in Attock among urban and rural areas, 1 primary school was randomly selected from urban area (0.0635\*17≈1) and 16 were randomly selected from rural areas (0.9365\*17≈16). Sample sizes for rest of each selected district in both rural and urban areas is mentioned in the given table. This intra-district distribution ensured the sample to

Rural Urban School Distribution Across Districts & Sample Size						
District Name	Percentage of Rural Primary Schools (%)	Percentage of Urban Primary Schools (%)	Sample size of Rural Primary Schools	Sample size of Urban Primary Schools	Total number of Primary Schools surveyed	
Attock	93.65	6.35	16	1	17	
Chakwal	95.72	4.28	16	1	17	
D.G. Khan	94.89	5.11	16	1	17	
Faisalabad	85.81	14.19	15	2	17	
Gujrat	93.10	6.90	16	1	17	
Khanewal	90.81	9.19	15	2	17	
Lodhran	95.65	4.35	16	1	17	
Muzaffargarh	95.23	4.77	16	1	17	
Nankana Sahib	93.29	6.71	16	1	17	
Sahiwal	92.71	7.29	16	1	17	
Sheikhupura	91.38	8.51	16	1	17	
Sialkot	93.73	6.27	16	1	17	

be more representative at district level according to number of rural-urban schools respectively.

#### 3.3.3 Inter-District distribution of sample:

Where possible, at least two or more than two primary school teachers (second stage sampling units) will be surveyed at each school. In case of conducting survey with 2 primary school teachers per school, a total of 204 primary schools were visited in total to achieve sample size of 408 primary school teachers. 204 primary schools were equally divided among the selected 12 districts, to ensure equal representation of each district with unique characteristic. This reduced the total of 204 sample primary schools to 17 sample primary schools per district. (The survey questionnaire is given as Annexure A.)

The distribution of the survey sample from both rural and urban Primary schools in the selected twelve districts remained as follows:



Selected Sample size of PSTs							
Sample Districts	Schools Sample in Rural Settings		Schools Sample in Urban Settings				
	Sample (#) of rural primary schools	No of teachers per school	Total Teachers surveyed in rural schools	Sample (#) of Urban primary Schools	No of teachers per school	Teachers surveyed in urban schools	
Attock	16	2	32	1	2	2	34
Chakwal	16	2	32	1	2	2	34
D.G. Khan	16	2	32	1	2	2	34
Faisalabad	15	2	30	2	2	4	34
Gujrat	16	2	32	1	2	2	34
Khanewal	15	2	30	2	2	4	34
Lodhran	16	2	32	1	2	2	34
Muzaffargarh	16	2	32	1	2	2	34
Nankana Sahib	16	2	32	1	2	2	34
Sahiwal	16	2	32	1	2	2	34
Sheikhupura	16	2	32	1	2	2	34
Sialkot	16	2	32	1	2	2	34
Total Surveyed			380			28	408

#### 3.4 Qualitative Data: In-Depth Interviews (IDIs) & Key Informant Interviews (KIIs)

In order to gather in depth information and to ensure triangulation in depth interviews (IDIs) and key informant interviews (KIIs) were conducted. The respondents for both kinds of interviews were different. IDIs will specifically were done with Primary School Teachers (PSTs) while the respondents of KIIs will included Representatives from QAED; Representatives from PEELI Project and School Heads.



**3.4.1 In Depth Interviews (IDIs):** In total, 12 IDIs were held with primary school teachers (PSTs) selected through convenient stratified sampling. Out of 12 IDIs, 6 were conducted with PSTs in rural



schools while the remaining 06 were conducted with PSTs of urban schools. Equal gender representation was assured for these IDIs i.e. 6 IDIs with female PSTs and remaining 6 with male PSTs. Detailed breakup and division of IDIs with PSTs is shown in the figure below:



(Questionnaire for IDI of both PSTs and HTs are given as Annexure B and C respectively)

**3.4.2 Key Informant Interviews (KIIs):** For KIIs, a range of respondents were reached to gather detailed information around research questions. The respondents represented key stakeholders including QAED, PEELI and Primary school heads. A total of 16 KIIs were held; Out of 16 KIIs, 12 interviews were conducted with primary school head teachers. Detailed breakup of complete qualitative strategy is given in the above diagram. Questionnaires for KIIs are given as Annexure D.

All research instruments were shared with the British Council focal person for their feedback. After the



Figure 8: Sample size of KIIs

incorporation of feedback and suggested changes and approval of revised ones, the tools were piloted to see if it further needed modification.



#### 3.5 Limitations of the Study

As the study design suggested, the research approach was of a mixed method where information has been taken in quantitative and qualitative mode from the target group members and stakeholders. All the research results, analysis and resultant recommendations are based on the information gathered through the respondent groups. No other practical means were used to qualify and verify the information through surveys and interviews. This could include the following:

- An observation checklist or form to see the available digital resources in the selected sample primary schools across Punjab.
- Review of ICT related training modules is also missed during literature review. The content list could be a means of triangulation of the information gathered from other sources.
- A review of any school document which presents the information on the frequency of usage of the computer lab, tablets and other available digital equipment.
- A practical assessment of the PSTs relating to their digital literacy to gauge the skill level.
- Meetings with monitoring personnel for their feedback and opinion on the accessibility and literacy part could have added more meaningful information to findings and analysis part
- Data collection, through interviews and training observation, during induction training session related to ICT might helped in a better analysis and resultant recommendation(s).



## **Chapter 4: Research Findings**

### 4.1 Characteristics of Selected Sample

**4.1.1 Geographic & Gender Distribution**: As mention above, 94% (380PSTs from 190 Schools) were selected from the rural schools while only 6% (28 PSTs from 14 Schools) were from the schools in urban areas. Out of the total 204 Schools, 50% were Girls' Schools, while other 50% were boys' schools. A same distribution of half and half was followed for the selection of male (50%) and female(50%) Primary school teachers (PSTs).



**4.1.2** Age group: More than one third (34%M; 39%F) of the respondent group is from an age band of 25 to 30 years of age band while approximately one fifth (20%M; 16%F) is from the age bracket of 31 to 35 years. This reflects almost half of the respondent group is young and resultantly more exposed to the digital technology. The forthcoming chapter of findings will reflect this in more explicit manner.



**4.1.3 Teaching Experience:** The data on teaching experience of PSTs verfies that majority of the sample respondents are young thus reletively new inductees. Almost half of the respondenst (42%) have a total teaching experience of 0-5 years while a similar fraction (46%) has specifically primary school teaching experience of 0-5 years.



**4.1.4** Educational Qualification: The selected sample PSTs showed a wide range of qualifications from post-graduation to basic high school qualification; the post-graduation level itself reflects a wide spectrum of specialization again including Human Resource, Computer Science, languages i.e. English, Urdu etc. The following graph reflects the key educational qualification of more than two third (84%) of the total sample population. More than one third (37%) of the sample population holds a Masters of Arts (MA) degree while a little less than one fifth (13%) sample population holds a BA degree and almost a similar proportion (12%) holds a Master's of Science (MSc) degree. A very minor group (6%) have completed their Intermediate (FA); a little less than them (4%) have obtained an MPhil and a same proportion (4%) holds BSc degree. Another small group (4% and 3% respectively) have completed their Matriculation and BS. It is worthy to note that there is a sporadic distribution of the remaining 16% population having other qualifications including B. Com, BBA, MBA M. Com etc.





**4.1.5 Induction Training:** Two third (76%) of the sample population mentioned that they were part of induction training however only about half (52%) of them mentioned that Information Technology (IT) was part of content of induction training they attended. While a little less than one fifth (13%) of the sample population did not respond to the question. Approximately one third (33%) of the sample population said that IT was not part of the induction training attended by them.



#### 4.1.6 Grades and Subjects Taught:

Approximately one third (29%) of the total population teach to all primary grades/classes and almost a same fraction (34%) of the respondents PSTs teach to grade 3. Class/Grade 3 is the class which has a direct access to "Tablets" for LND purposes. The later data will signify that the teachers of Grade 3 mostly have a direct access to these digital gadgets i.e. tablets. Other responses also show a similar distribution of PSTs teaching to various other primary grades. As it was a multiple Options question thus the statistics show that most of the teacher teach to more than two grades.





Almost half of the respondents (48%) mentioned about teaching all the subjects while the remaining half population is distributed as "1 subject" (10%), 2 subjects (15%), 3 subjects (17%) and more than 3 subjects (8%).





#### 4.2 Findings on Digital Accessibility of Primary School Teachers

**4.2.1 Mobile Phone:** The survey data reflect that a little less than total sample population (98%) have an access to mobile. Both males and females have an equal access to mobile.



More than two third (72%) of the sample population of PSTs are using android based smart phones while almost a same proportion of sample population (71%) mentioned that their phone has a slot for SD memory card. A little less than one third (27%) are using simple/basic mobile phones and almost same percentage (22%) shared that they are unaware of the type of software used in their mobiles.





A little less than total sample size of PSTs is using Prepaid mobile connection for their routine use. A minimal number (3%) of them are using postpaid connection while a little less than them (2%) did not respond to this question. Only 3% of the selected PSTs don't know the kind of connection they are using.



A large majority (94%) shared that they own a personal mobile; a minimal percentage (3%) share the mobile with their family and same percentage did not chose to respond to the question.



The qualitative data gathered through interviews of Head Teachers (HTs) and Primary School Teachers (PSTs) thoroughly confirms and validate the statistical information regarding access, ownership status and kind of connections and mobile phones used. A PST stated:

"... I have smart phone with no memory card, and having pre-paid connection and use mobile data on monthly package."

Another mentioned the same as:

"I have mobile and it is android based smart phone... I have prepaid connection."

It is pertinent to note that though majority of PSTs have access to mobile phone however there are still a number of primary teachers who either do not have smart phones or do not know how to use it. Almost all the head teachers specifically mentioned about this small fraction of senior PSTs who use simple phones and find it challenging to us the latest technology and digital gadgets.



**4.2.2** Access to Digital Facilities at Home: On question relating to access to digital facilities at home, more than half (57%) of the total sample population of PSTs chose not to respond to the question. Less than one fifth (14%) of the sample have access to desktops while almost a similar percentage (13%) have access to laptops at home. A very few PSTs (4%) have both desktop and laptops at home while a little more than them (6%) have a tablet at home to which they can access.

The qualitative information regarding access to digital facilities at home, two third (60%) of PSTs mentioned that they either have laptop or desktop at home but even the ones who have these facilities at home hardly use it. The computer or laptop is mostly used by their family members. Hardly a few use the facilities at home either for personal or professional use.



#### **4.2.3 PSTs' Access and Usage of of Digital Facilities in School:** More than three forth (76%) of the sample population of PSTs mentioned that they have an access to tablets in schools. A negligible proportion of PSTs (2%) mentioned their access to desktop computers in schools. Similarly, very a minimal percentage (6%) shared about their access to both tablets and desktop computers in schools. While only about one tenth (9%) of PSTs decided not to respond to this question. More than three forth (88%) sample population of PSTs

More than three forth (88%) sample population of PSTs shared that they are allowed to use available digital







facilities in school. Only about one tenth (11%) of them shared that they are not allowed to use the facilities.

While more than half (62%) of the sample PSTs shared that they use the digital facilities on daily basis; only a little more than one tenth (13%) said that they can use the facilities anytime and almost a similar proportion (16%) chose to not to respond to the question. A negligible percentage of sample PSTs (1% & 2%) mention that they use the digital facilities once a week and twice a week respectively and only 5% share that they do not use the digital facilities at all.

While sharing the duration to use the digital facilities in school, a little less than half (45%) of the sample PSTs shared that they can use the facilities at any time during school timings. However, about one third (32%) of the selected PSTs mentioned that they can only use the facilities during a specific period. Only a minimal proportion (2%) mentioned that they can either use the digital facilities during free period or after school. About one fifth (19%) of the sample population chose not to respond to then question.



Talking about PSTs' access and usage of digital facilities at school, the qualitative data evidently depicts that PSTs, especially those of primary schools, hardly have any availability thus lack of access to any digital equipment. They only have access to the tablet available for Grade 3 students for LND. Some primary teachers who, as in-charge of Grade 3, have access to these tablets even after school time while rest of the PSTs cannot access to the tablet during or after school.

In addition, PSTs of primary schools do not have access to internet; even for tablets they use their own prepaid data connections. This low access to digital facilities in primary schools result in an overall poor accessibility status.

On the other hand, in high schools where the computer labs are equipped with computers and internet, almost half of the respondent HTs and PSTs mentioned that primary teachers are allowed to use computer labs with support of lab technician or computer/IT teachers.

A few head teachers of these high schools categorically mentioned the inaccessibility of PSTs to these computer labs.



"They do not visit the lab. Computer is not a subject of primary classes, so there is no reason for them to visit IT lab. If any PST need IT support our computer lab in charge support him."

#### Another head teacher put it as,

"PSTs are not allowed to visit IT lab, because we do not have IT assistant and we cannot keep the doors open for all classes. Expensive equipment is placed in computer lab, the teacher wo take class in lab is always responsible for all items in the lab. ... students used to steal things from computer lab and we cannot bear those losses..."

#### 4.2.4 Usage of Digital Facilities in Schools by Students:

Three fourth (70%) of the sample PSTs mentioned that their students are allowed to us the available digital facilities in schools. While talking about the frequency of their usage in schools, approximately four-fifth (79%) of the sample population stated that the students use these digital facilities on daily basis.

Talking specifically about tablets, available in primary school, more than four-fifth (87%) of the sample PSTs mentioned about the usage of available tablets in schools by the students.





The qualitative data also validates the data reflected in graphs above that students are allowed to use available digital facilities. In primary schools, since the generally available facility is "Tablet", students of grade 3 practice it (thus use it) almost on daily basis. The primary students housed in high schools are hardly allowed to go to computer labs except for some exceptions where head teachers allow both the PSTs and the students to use lab for learning purposes. Otherwise almost all the respondents, both PSTs and HTs, shared that in majority cases only one tablet is available at primary levels. Students do not get ample opportunity to use the tablet. The access and usage of tablet other than during the class time, i.e. for LND purposes only, is almost negligible. As concisely expressed by a respondent PST:

"Government has provided only 01 tab for school, which is used to teach class 3, we use it for teaching lesson and student practice in specific class period. Otherwise we are teaching in traditional way using black board and books...the tablet provided for 3 class is used daily in the class for teaching and student practice."



**4.2.5 Technological Initiative by Government or NGOs:** On receiving technological support from stakeholders (Government schemes/ NGOs/ Projects etc.), more than half (53%) of sample population shared that there has been no intervention for technological/ digital upgradation in school. Only about one forth (28%) mentioned of some support in this regard. On asking of the kind of support received, about four fifth of PSTs gave no response; a little more than one tenth of them mentioned of teacher training while a minimal proportion (6%) mentioned e-learning as the support received in this regard.



During the discussions and interviews, majority of the HTs mentioned that there has never been any support for technological advancement in primary schools. While discussing the reasons of this lacking, majority of head teachers (HTs) attribute it to be the responsibility and/or concern of government or relevant departments. Head teachers repeatedly suggested and requested government department to facilitate the digital accessibility in primary schools through provision of infrastructure. One head teacher stated:

## "Government have enough resources, one should just request again and again..."

A few of them clearly mentioned that NGO support is not permissible in their area thus they are totally dependent either on their own budget or on government. One of the clearly stated that:

"We are not allowed to get funds from any NGO. What I can do personally, I have allowed al staff to use all available resources in the school. Next I can do to manage things in the budget provided by the department."



#### 4.2.6 Digital Literacy related Professional Development: More than half (61%) of the PSTs mentioned that they have received some Introductory Courses on internet use & general applications (basic word, spreadsheet, presentation, database etc. Only a few (4%) mentioned about subject specific training like learning applications and almost a similar fraction (5%) mentioned about the training *course on multimedia* (using digital audio video equipment) while a little more than one tenth (16% and 13%) of the proportion of respondents mentioned about digital literacy provided by school staff and personal learning about digital literacy in own personal time.





The survey data shows that two third (75%) of the respondent PSTs shared about the use of digital facility in the class and an exactly same percentage of the respondent population mentioned that the purpose of using this digital facility (Tablet) is for students' practice. One third (31%) of the PSTs shared that it is used for teaching purposes while only a few (4%) of them shared that it is used for lesson planning.





**4.2.7 Support for Using Digital Technology:** On the topic related to using any expert's support for teaching a little more than one third (38%) of the sample population shared that they do take support.

The respondents were provided with various options of support taken for using digital facility; it is interesting to see that for each option, almost half of the PSTs mentioned that both technological and pedagogical support was taken from experts from outside school (47%), other school staff (48%), school ICT/Technology Coordinator (47%) and a more knowledgeable experienced teacher (44%).





**4.2.8** Factor Affecting use of Digital Facility: Discussing the factors that affect digital facility use, more than one third (37%) of the respondents shared that "insufficient number of computers" affects "a lot" the use of digital technology while *"lack of adequate skills to use computer and internet"* (33%) is another reason that affect the usage "a lot. *Lack of content in national language* (25%), *lack of interest of teachers* (26%), *no or unclear benefit to use ICT for teaching* (26%), *lack of ICT training* (27%) and *personal belief that I do not use digital technology in my teaching* (21%). Almost similar percentage (17%, 20%; 25% 29%, 26%, 295 and 21% respectively) than these mentioned that these factors affect "partially" their use of digital facilities. While almost half of the respondent's





population (47%) said that the use of digital facility is "not at all" affected by their belief that they do not want to use digital technology.

Though more than four fifth (86%) do think that it will be beneficial for primary school teachers to have some training on digital literacy. However, while talking about using online courses, almost all the (91%) PSTs shared that they have never used any such platforms for learning.



Further sharing their views on use digital facilities for learning and teaching more than half of the population (56%) said that all the options (including: improved access to learning and teaching resources, increased opportunities to CPD and better equipped students to enter 21st century) are considered to be important because of the plausible impact on learning and teaching.





Discussing the suitable options for substitute of traditional method, approximately half of the respondents (strongly agree: 44%; 41%: agree) mentioned "virtual training" as an easy option while one third (31%) strongly agreed with "online training with modules" as a suitable substitute.



Considering their own local context of primary schools in Punjab, four fifth (85%) fraction of the PSTs believe that Face to Face (Traditional training) best suit them given the resources and challenges. A very minimal percentage of them mentioned about blended learning (12%), online training (8%), mentoring and peer learning (8%) and exposure visits to other schools (4%).

Foreseeing the challenges that may be faced while use of digital technology for teaching and learning, around one fifth (18%) mentioned capacity building of PSTs as a plausible issue, while a similar fraction (19%) shared that lack of infrastructure can be a key challenge. A negligible percentage (9% and 5%) mentioned time constraints of PSTs and power shortage, respective, as some possible problems. However, half of PST respondents (49%) mentioned that all the above-mentioned issues jointly can become a major challenge.




#### 4.3 Findings on Digital Literacy of Primary School Teachers

**4.3.1 Use of Mobile:** More than three forth (73%) of the sample population indicated that the prime usage of their mobile phone is "communication" (*which includes all kinds of communication i.e. whats-app; calls; SMS; using other software for calls, video calls and messages etc.*). While more than half (57%) of them mentioned "social media" as a key usage of mobile phone and a little less than this proportion (42%) mentioned "email" as one primary use of mobile. A little less than one-fifth (16% and 15%) mentioned "professional development" and "teaching purposes" as one of the key uses of mobile. Only a small fraction (7%) of the sample population of PSTs mentioned "calls" and "texts" as use of mobile.



The qualitative data also strengthens the survey data as almost all of the respondent PSTs confirm that the key usage of mobile for them is communication. A number of PSTs during interviews mentioned the use of mobile as:

"I use mobile for calls and text/ messages only."

While a few exceptions also mentioned that they use their mobile phone for using internet in school for teaching purposes.

"I use mobile phone for teaching and professional development..."

#### Another one mentioned:

"Yes, I have smart android phone having prepaid connection. We use to use internet of school for communication and searching."



**4.3.2** Use of Communication App: As a further evidence to the statistics mentioned in the heading above, a little less than four-fifth (77%) of sample PSTs mentioned that they use communication application on their cell for communication purposes. Almost all of them (99%) shared that they use "WhatsApp" for communication while almost half (51%) of them mentioned "Facebook Messenger" as another means of communication. Skype (11%) and Viber (2%) remained some other application used by a limited proportion of the target population.



During the interviews, quite a number of PSTs also mentioned about using mobile for various other purposes including communication apps, social media and emails as well. A PST quite eloquently mentioned the use of mobile as:

"I use mobile for communication, and for social media; I feel totally comfortable when I use it for social media, especially for WhatsApp."

A few Head Teachers (HTs) also mentioned that WhatsApp is a popular way of communication over mobile and a number of them use WhatsApp groups for sharing information and communication.



**4.3.3** Use of Social Media Networks: More than four fifth of the (86%) selected PSTs mentioned that they use Facebook while a little more than two third (33%) mentioned that they use YouTube; almost a same (30%) fraction shared that they use Google + as well. Instagram (10%) and Twitter (15%) is also used by a one fifth of the population segment of PSTs. However more than half (61%) mentioned that they use these social networks primarily for their personal use while the rest (39%) mentioned that it is also used for professional purposes.



Further augmenting to the statistics related to use of mobile for "communication purposes", as mentioned above, almost all (97%) of the PSTs of sample population mentioned that they know how to send a message through Facebook; a little less than three forth (66%) population mentioned that they know to send the message using Facebook messenger while a little less than one fifth (18%) PSTs mentioned the knowledge of using skype for sending messages. Only a negligible (4%) fraction showed their knowledge to send simple text messages.

An exactly similar trend of percentages is shown while sharing their knowledge about making calls through various communication applications. All (100%) of the selected PSTs have the knowledge to make a video call as well as to make group on WhatsApp; a little less than half (45% and 44%) of them can make video call and group, respectively, using Facebook messenger while one fifth (20%) have knowledge of making video call and a little less than them (16%) know to make group on skype.





The data interestingly shows that even though a vast majority of the sample population use mobile and internet for communication purposes, using various applications, and for social networking however only about one forth (24%) of the fraction has used internet based online services to purchase goods. More than two third (76%) of them have never used this facility for purchase purposes.





**4.3.4 Basic Computer Skills:** A clear majority of the sample respondents, while discussing basic computer skills (including: *Log-In* [80%]; *Open a Program from menu* [71%]; *Creating Shortcut* [60%]; *Saving* [57%]; *Renaming a File* [61%] and *Logging out & Shut down* [72%]) opted for "I can do it" option. Approximately one fifth of the fraction or little less than that opted for "I would not know where to start" (including: *Log-In* [13%]; *Open a Program from menu* [16%]; *Creating Shortcut* [22%]; *Saving* [21%]; *Renaming a File* [22%] *Logging out & Shut down* [17%]). Only a negligible fractions of sample population opted for "I don't understand the question" and "I could do this but find it difficult".



On the skills which are a step forward to the ones mentioned above more than half of the respondents opted for "I can do this" (including creating a folder [57%]; moving a file from one location to another [57%]; deleting a file [53%]; finding a date file was created [53%] and finding size of file [53%]). Again, one fifth or little less than then opted for "I would not know from where to start."



The in-depth information collected through interviews also show that though more than half of the respondents PSTs know the basics of computer however there is still a number of PSTs who do not know how to use computer and require support to work on.



"I am unable to use it ... whenever it is needed I tell others to do this."

Even if few know the basic skills, as the skill level gets advance the fewer PSTs qualify to use computer on their own.

"I am comfortable in typing, my typing speed is good, but I need support of teacher to open computer"

#### Another one stated:

"I have learned how to use computer but I am at beginner level. Our Computer teacher used to take classes of other teachers. Hopefully I will learn it fully in next 6 months."



# **4.3.5 Microsoft Office:** The survey shows that almost four fifth (78%) of the representative sample of PSTs have experience of using Microsoft Office.

While sharing the skill level for beginner's level commands of Microsoft Office, approximately half and of the respondents mentioned that they can open existing file, add text and save it (54%) and save an existing file to another location (515) respectively.

While slightly less than half of the representative sample mentioned that they can insert a page break (42%), copy text to other document (43%) and can use find command to find a word or phrase (39%).



More than one quarter of the sample population failed to understand the question relating to these skills whereas approximately a similar fraction (18%;

19;23%; 21% and 23% respectively) of the population opted for "I would not know where to start from."



A little less than half (45%) of the respondents shared that they know changing the font and size of text however a little more than one third of the population can "set tabs to align text & numbers" (38%); "Apply appropriate style to document" (39%) and "Apply appropriate style to power point slides" (36%).





Almost one quarter of the population (22%; 24%; 23% and 25% respectively) opted for *"I would not know where to start from"* and approximately a similar fraction of population (23%; 235; 25% and 24% respectively) could not understand the question.

Responding to the questions relating to the skill level for working on word, excel and power-point presentation slides, almost one third of the respondent population (including *set tabs to align text & numbers [38%]; Apply appropriate style to document ]39%] apply appropriate style to power-point slides [36%])* opted for *"I can do this";* while with an exception of apply formulas to excel cells with a one third population (34%), almost one forth fraction of respondent population (28% for creating a header for text; 25% for inserting table into document and 24% for inserting an image to a document) opted for *"I would not know where to start from"*. Whereas again one quarter of the (24%) is consistently opting for "I don't understand the question" for these sections relating to use of excel, word and power point documents.



Again, the PSTs, during the detailed discussions verified these statistics showing that less than half of the respondent group know to use Microsoft Office. And the proportion decreases as the skill level gets higher to an extent that except for few, hardly any PST feel confident using Microsoft office (including Word, Excel and PowerPoint) on his own. One of the PST clearly shared:

"I have little command on digital technology... I just login and logout from computer or used to see movies."

#### Another one mentioned:

"I am quite confident in suing Microsoft Office... I have also done computer course privately when I was in grade 12. So, I can use Microsoft office for my educational work and I am quite confident I do not need any assistance."



#### 4.3.6 Email:

Use of Email IDs: More than two third (73%) of the sample population of PSTs have an email ID however almost half of the respondents (48%) of them use their email only for *social media* purposes. Almost one third (33%) of them use the email IDs for *work*, a little more (36%) use it for *professional connectivity* while almost same fraction (31%) use email for *personal use*. The data also reflects that almost two third (69%) of the PSTs check their email on mobiles while only about one sixth (15%) of them check their emails on desktop and tablets while a little less than them (12%) access their email through desktop.



The in-depth discussion with PSTs on the topic of having Email IDs and using it, it is verified that majority of PSTs do have email IDs however half of them either do not use it or just check it with help of someone that even for work purposes (salary slip) strictly. One of them stated:

"Yes, but I use it for salary slip only. Our computer teacher has access to my email id and he supports to take print of my salary slip."

A few others who use email IDs share the nature of usage as:

"Yes, I do have email. Without email you cannot use social websites, I do check email on phone but I do reply from computer, it's easy to use email from computer"



• Using and Composing Email: More than four-fifth (84%) of the fraction of respondents

shared that they use email. The information is further strengthened with the data where more than two third of the respondents opted for "I can do this" for all the questions related to email usage (including: *open an email* [66%]; read and reply to an email [65%]; compose a new message [61%]; attach a file to a newly composed message [56%]; forward an email to another person [59%] and add contact to address book [49%]). While less than one fifth of the fraction of respondents (16%) did not understand all questions related to email usage. Almost a similar or a little more of the proportion of the sample



respondents selected "I would not know where to start" for all the questions (including: open an email[14%]; read and reply to email [16%]; compose a new message [18%]; attach a file to newly composed message [20%]; forward and email to another person [20%] and add contact to address book [24%]).



As mentioned earlier, though PSTs have email IDs however most of them either do not know how to use thus need support or else they do not use it at all. Quite a number of them mentioned that they do not feel comfortable using computers, emails etc. A few of them do mention that they have emails and *"check it on daily basis"* either through mobile or computer.



**4.3.7 Browsing Skills:** The data related to respondents' skill level of browsing on search engine shows that approximately half of the respondents are comfortable in using search engines for basic tasks however the more it gets complicated, the lower the fraction of PSTs who can do the skill confidently and opted for "I can do this" option (i.e. Opening a browser [64%]; find information using a URL [56%]; Use search engine to find information [52%]; follow weblink [46%]; reset browser as homepage [40%] and save webpage to favorites [40%]).



While sharing the skill level of data storage and accessing it two third (71%) of the respondents know how to male audio clip from mobile while a little less than then (69%) know how to make a video clip. Approximately half (59% and 54%) of the respondents know how to save these audio/ video clips to the storage memory of mobile and access it from the storage through mobile respectively.





More than four fifth (87%) of the population claimed to familiar with using content sharing platforms. However contrary to this a little more than one third of the population (37%) know how to *make an account on content sharing site*; similarly, approximately similar fraction (33%) know how to upload an audio/video clip on content sharing website while again approximately same percentage (41%) know how to access and watch the video clips on content sharing sites.





The qualitative data shows that though the usage of social media apps is a common practice however as the skill goes from beginner level to intermediate and then advance, the fewer PSTs have the knowledge or skill to perform the task. E.g. A number of PSTs mentioned that they know how to make audio or video clips through mobile however they haven't ever uploaded it on social media networks. A few did that on the common networks e.g. Facebook but hardly anyone from the respondent group have uploaded any file on networks like sound cloud or YouTube. As one PST put it:

"Yes, I use YouTube and sound cloud for music, I can record audio, video and also can upload video on Facebook and WhatsApp. On YouTube I never uploaded."

#### Another one stated:

"I am confident to record video from my mobile but I don't know that how to upload the content on the YouTube or on other social media networks except WhatsApp or Facebook."



# **Chapter 5: Key Insights & Analysis**

The everyday increasing use of digital technology in all fields of life, it is becoming imperative to have an access to these facilities and have knowledge to use them in a prolific way. Punjab is considered as the most resourceful province in Pakistan. The literacy rate and overall scenario of education is also better here as compared to other provinces. However, the study brought out evidences of key importance that highlight the ground realties of the public school of Punjab and putting a question mark on the policy making and priorities of governance structures.

The study results depict that majority of the PSTs have a direct access to mobile phone. They use mobile frequently for communication and social network purposes. Sending text messages, making phone and video calls, making video and audio clips and communicating over a group on social network seems like a commonplace thing among the target respondent group. They have far better access to mobile phones than to laptop, computers and other digital facilities. This naturally results in being for confident and comfortable using mobile phone.

"The PSTs are more hands on with using mobile phones. They use WhatsApp and other communication applications and are familiar with it... Microsoft office is something that is very challenging for them especially for the ones who are hardly Matriculate or is from an older generation..."

Whereas in schools, for PSTs, there is hardly any access to any technology except for tablets which are mostly used by grade III students for their LND practice. Even for that matter, teachers use their mobile data sometimes to access internet. Especially in primary school there is no technology available except one tablet which is bought using the school budget itself. Mostly head teacher of grade III class in-charge keeps the gadget.

Other PSTs either owing to time constraint or lack of interest do not use it. In primary school which are housed in High schools, the PSTs still seldom get a chance to visit labs sometimes owing to lack of trust of Head teacher, sometimes owing to the reason that primary teacher has access to tablet and that this all they require since computer is not part of the curriculum. With this perception and in this situation, the PSTs never get a chance nor they try to use digital facilities present in the campus for their own teaching and learning. The PSTs know they have nothing at stake since they don't have to cover anything in curriculum that has to do with digital technology.

"The labs were primarily equipped for the computer subject introduced for Class 9/10 and there are also computer teachers who have access to these labs. For primary school teachers it is near to 'No go Area'; in some cases, even head teachers are not allowed to go there."

Interestingly, the study also reveal that the respondent group very well appreciate the importance of use of digital technology however the awareness of their own reality, with no internet signal and zero access to digital resources, these teachers prefer traditional face to face method for capacity building. In spite of having complete awareness of positive impacts of technology usage yet majority for them have never participated in any online course. If given an option, the PSTs feel that virtual trainings and online sessions can be a good substitute of traditional trainings. The findings clearly indicate that no amount of appreciation of digital technology, its usage for teaching and learning, can deny its dependency



accessibility to resources and concerted digital literacy integrated in the curriculum and resultant teaching techniques.

It is evident from the study that mobile usage is far extensive among PSTs as compared to desktops and computers. The issues in accessibility resulted in low digital literacy. The induction, since 2012, incorporated ICT as a module however the introductory nature of concepts taught to new teachers do not prove helpful in horning their skills further. Neither the curriculum nor the teaching methods and then the school environment is conducive for teachers to practice the skills and learn more. The PSTs, it shows, are challenged to use Microsoft Office and other internet-based content sharing networks which require intermediate level skills. Even if the online courses will be introduced, teachers would still require both technological and pedagogical support for teaching and learning.

"There is at least one such PST in almost every school who can hardly use the simple phone...The one who can use mobile phones are still not literate enough to use internet for teaching and learning purposes... this is a far-fetched idea for them; the induction training only covers the theoretical part of ICT. In order to make them digitally smart, they need to have more practice."

Lack of resources and infrastructure, power issues, and limited digital literacy together build a handicap environment for learning. An overhauling of the situation within the given context calls for a cost effective yet productive solution. Refurbishing the professional development is not a standalone task; it needs revamping the system and addressing the systemic gaps. It might require more research for the insights of policy level preferences, availability of resources and other priority requirements however in absence of an overarching shift to ICT integration in schools at all levels from teaching to learning, the training remains the first step towards change. The school management, stakeholders related to professional development and PSTs equally feel that the department has to take measures in this regard.

#### A stakeholder commented:

"The schools are to be made policy bound to ensure that PSTs have an access to computer labs and other available digital resources... The monitoring systems also need to consider the access and usage of the resources by PSTs... otherwise the accessibility and literacy issues cannot be ensured."

#### The same idea is shared by another KII respondent as:

"School Education Department needs to take interest in this. If a notification is sent to schools to ensure the accessibility of the digital resources to teachers, the school management will follow the instruction. Follow up has to be made part of monitoring... Key issue is the unavailability of digital resources at primary schools... Policy shift needs to be taken otherwise no amount of intervention will help improvement."



## **Chapter 6: Recommendations**

Collected information from Primary Schools in 12 districts of Punjab revealed the status of digital accessibility and digital literacy of primary school teachers in government schools of Punjab. Results showed that the larger proportion of primary school teachers (male and female) fall under the youth bulge. This reflects the fact that they have greater capacity to adapt to technological changes. Findings also reveal that the access of mobile phones and other digital gadgets for educational activities to all the primary school teachers are almost similar in all the districts of Punjab. Majority of primary school teachers have made known that their usage of smart phones or mobile phones is only for communication purposes. However, majority of school teachers do not have access to tablets, that is, limited number of classes have shown access to tablets for instructive activities. Survey results from some schools have also shown the reluctance of Head Teachers to give access to digital gadgets available in the school. Hence, summary of key findings directs that current digital accessibility of primary school teachers is not enough to enhance the sense of community and collaboration among students and teachers. Digital accessibility in the form of mobile phones, tablets and computers are the most preferred ways for educational activities and effective learning. Based on these findings and within the context of generalizability across the region, recommendations are made to address the policy makers, government officials and service providers for the development of further initiatives in primary schools of Punjab.

The evidence base for the specific types of technology which best aid teachers' development and learning is relatively small. There is a need for further research to explore the benefits and challenges related to particular interventions.

#### • Use of Mobile as pivot of digital facility:

Given most of the surveyed primary school teachers own a smart mobile phone and most of the Punjab's area is rural, an initiative along the same lines of *Asian Development Bank* funded project in Bangladesh by the name of *Teaching* 

# Expected benefits of using the proposed modality of training include:

- Convenience—easy access to training from their workplace; not being separated from their families or having to take leave from school
- Maximized use of available digital resource
- Readily available technical resource to use mobile
- Opportunities for ongoing communication with trainer and fellow trainees at other schools
- Modern and exciting approach—as opposed to the traditional approach; increased the interest of the pupils as well
- Increased face-to-face interaction—between teachers and school administrators at the school level, due to the school-based nature of professional development
- Fostering of collegiality—due to the need to work together and provide feedback to one another.



*Quality Improvement in Secondary Education Project* <sup>9</sup>could be just appropriate. Mobile technology can be used to aid traditional face to face training.

Considering PSTs' mentioned plausible challenges to non-traditional method of capacity building, blended approach can be an appropriate option suiting to provincial context as it will lead to a more rigorous and quality teacher training and simultaneously will strike balance in terms of reliance on technology (to prevent failure of the project if technology fails). The proposed method will help teacher trainers and teacher trainees to get connected through mobiles, at district level, to achieve convenience, on-going communication with trainers and fellow teachers at other schools, and formation of learning community within schools which supported group discussion and self-learning. The program needs to be combination of:

- print-based learning materials;
- a face-to-face orientation workshop;
- synchronous, on-demand voice communication;
- asynchronous Short Messaging Service (SMS) text messaging; video and photos sharing; and
- school-based group discussion activities

The proposed professional development will be based on printed materials and practical application of training content with peers. The use of mobile phones is intended primarily to enhance communication, motivation, and multimedia delivery.

To make above intervention or any other digital technology-based initiative, more effective and user friendly few issues should be addressed. These are as follows:

#### Train the trainers for use of technology

Trainer should take the lead in more advanced and instructional application of mobile feature. These applications may include precise and clear clips of model teaching, pictures of innovative teaching aid or class configurations. Trainers can make use of short messaging service (SMS) and multimedia messaging service (MMS), while teacher trainees can resort to conventional person-to-person calls. In this way teacher trainees can focus on course content without excessively entangled with technology.

#### Incentive Based Use of Technology

Both mobile phone and video incorporated teacher training can aid in introducing and strengthening of site-based teacher training. Any new initiative can't be successfully implemented unless incentive mechanism, both intrinsic and extrinsic, is associated with it.

Extrinsic incentives: Extrinsic incentives can include variety of rewards for the teachers working to improve their teaching. These incentives can include remunerations and certifications for achieving certain standard during training i.e. in terms of participation and innovation. Promotions linked to participating in certain ICT based training courses throughout teaching career. Micro-credit made available for purchase of mobiles or laptops. Rewards and appreciation as recognition by head teacher, parents and community leader for best performing teacher. A holistic system intrinsic and extrinsic incentive is necessary for any technology-based intervention in teacher training to be successful. Plan to provide multiple incentives such as workload reduction, recognition and reward in faculty evaluations, increased research allocations to encourage use of ICT in teaching, and compensation for those providing educational or technological assistance to others.

<sup>&</sup>lt;sup>9</sup> https://ierc-publicfiles.s3.amazonaws.com/public/resources/STEP%20AP%20Bangladesh.pdf



Intrinsic Incentive: To be successful new intervention should have intrinsic incentive, which includes intervention should add value to the end result, it is easy to use, time and support is provided to learn and practice. A monetary remuneration mechanism, to reimburse teacher trainees for the cost of calls that they make for feedback or consultation, will also help to motivate teachers. The school heads also need to be encouraged to support the program through school funds.

#### Integrated training program

Training on the use of mobile phone features, relevant to the program, should be a part of induction training. A training manual should be developed, by experienced trainers, for the trainer that specifically spells out appropriate instances when and how a trainer should initiate discussion, evaluate progress and get feedback and on which stages or where the technology can be used or introduced for the same.

#### • Use of videos for observation, feedback and reflection:

Another method to incorporate technology in teacher training is through using videos of class room practice, videos to observe class room practice and videos for self and peer reflection. This can be done along the same lines as Aga Khan University, Institute for Educational Department, did in English Language Teacher Education programs. Teacher trainees can be trained, to record and create a video clip through video software, during induction training or during routine training program at district level. These videos can then be used by teachers to assess their own classroom practice, and observe best practices.

Tablet devices that are available to primary classes can provide suitable platform for use of such video software. Mobile based system of teacher training stated above, can act as a medium of video sharing and subsequent feedback from the trainer and peers. As the primary school teachers sampled for the study are young, showing that major portion of primary school teachers are young with masters level degrees, teaching them innovation should not be a problem. In addition to this learning through observation and practice will be more interesting.

#### District Training Service Centers

In District Training Service Centers, computer support for professional development may offer an effective balance of access and considerations of cost, infrastructure, and technical support. However, it is critical that professional development initiatives remain appropriate to the conditions that confront teachers in their schools.

#### Ensuring Access to Available Resources

Teachers need to develop their ICT skills and digital literacy. One way this can be achieved is by ensuring access to existing technology in schools. The study reported that there are often problems with accessibility or permission to use computer labs or available tablets, for example. In some schools, internet signal is an issue thus teachers' mobile data is used, while in high schools, headteachers have trust issues to let teachers use the lab or they feel that PSTs do not have any teaching requirements to seek digital support etc. Such issues need to be resolved through various mechanisms. Few are as below:

#### • Availability of Content on Different Channels

Creativity is required while developing digital content and resources for teachers so that it can sit on multiple channels, depending on teacher preferences for access. Clearly, different



channels will enable different levels of interactivity and functionality, but core content can potentially be similar.

• ICT-pedagogy integration:

One of the best ways to develop teachers' ICT skills and promote ICT-pedagogy integration in their teaching is the provision of ICT-based training environments where on-demand access to materials, peers, and networks of experts where expertise and advices can be obtained and active discussion can take place in relation to technology or pedagogy. In this regard, the approach of using ICT to support teachers' on-going professional development and networking can be very effective as long as organized support is provided

- Policy Shift: For such a significant policy shift in one of the most important components of the society i.e. education, support and planning at the macro level i.e. government and policy making, is of pivotal importance. To further elaborate, elements for proper implementation stated by Unwin (2005) will be stated once again.
  - First is strategic leadership; ownership of the initiative at the highest level which will be national government and Ministry of Education is required.
  - Second is the ownership and involvement of stakeholders, in addition to the government, is required in development of intelligible strategies and action plans.
  - Third is integration with overall national ICT policies.
  - Fourth is implementation plan should be in line with the current situation of infrastructure.
  - Fifth is awareness raising workshops to the stakeholders i.e. administrators, government officials, training authorities, teachers, and head teachers about the real potential of ICT in teaching.
  - Sixth is integration of ICT in teacher training from pre-service training and continuing through inservice training.
  - Last is the support from the community i.e. private sector and civil society organizations.

## 7. Annexure

#### 7.1 Work Plan

	Jul	-18	Aug-18			Sep-18				Oct-18			Nov-18			
Work Plan (In Weeks)	WK	WK	WK	WK	WK	WK	WK	W	WK	WK	WK	W	W	W	W	W
	3	4	1	2	3	4	1	K2	3	4	1	K2	K3	K4	K1	K2
Main Activity: Desk Review and Inception																
Report																
Sub-activity: Instrument design																
Sub- Activity: Inception meeting																
Main activity: Field Work																
Sub-activity: Pilot/Pretesting																
Main activity: Primary Data Collection																
Sub-activity: Conduct of Surveys with PSTs																
Sub-activity: Conduct of Interviews																
Main activity: Data cleaning, coding and																
analysis																
Sub-activity: Data Consolidation and Coding																
Sub-activity: Data Analysis and updating of																
indicators				`												
Sub-activity: Development of Draft Report																
Main activity: Submission & Presentation																
of Draft Report																
Sub-activity: Finalization and submission of																
Report																
Sub-activity: Presentation of Report																
Key Outputs and Milestones																
Submission of Final Report																
Policy Brief															X	
Presentation of Main Findings																X

Retty



#### 7.2 Data Collection Instruments

The following tools will be used for data collection for this research study.

#### **Quantitative Tools**

1. Survey with PSTs Survey with PSTs

#### **Qualitative Tools**

- 1. In depth interview with PSTs
- 2. Key Informant Interview with representatives of PEELI Head teachers/school administration
- 3. Key Informant Interview with representatives of QAED and PEELI representatives



#### 7.3 Annex – A Survey

#### Survey for Digital Accessibility and IT Literacy

Study	District	UR/RU	MT/FT	GS/BS	Series NO
DAL					
District: 1st 2 Alphabets, UR: Urban, RU: Rural, MT: Male Teacher, F: Female Teacher, GS: Girls School, BS: Boys School, Serial No: Form No					
Full Name of Surv	veyor: First Name:		Last Name: _		
District:	Town:		Village:		
Data: /	/		Timo:		

Date: \_\_\_\_\_\_/ \_\_\_\_\_ Time: \_\_\_\_\_: \_\_\_ AVI L PIVI L Introduction: My name is \_\_\_\_\_\_\_. I am representing a consulting firm named DevTrio Consultants. We are conducting a research study to assess digital accessibility and literacy of PSTs in Punjab. The information gathered will be used strictly for research purposes and your identity and anonymity will be ensured. The information is important to modify future trainings you are offered so kindly think carefully and answer the questions. There is no right or wrong answer so please answer as you deem fit. Do I have the permission to proceed to asking you relevant questions and record your answers? You are free to withdraw from this research at any time by telling the surveyor. Thank You

#### **Section A: Digital Accessibility**

1. BASIC INFORMATION							
Gender	Qualification(s)	Teaching Information					
		Which grades do you teach?					
Female		(Tick as many applicable)					
Age	Experience	🗖 Nursery/Prep 🗖 One					
25 – 30 years	<ul> <li>Total teaching experience in</li> </ul>	Two   Three					
31 – 35 years	number of years:	Four     Five					
36 – 40 years		All of the above					
41 – 45 years		Which subjects do you teach?					
46 – 50 years	<ul> <li>Teaching experience as PST:</li> </ul>	🗖 English 🗖 Urdu					
51 or above		Math Science					
		Islamiat Drawing					
		Social Studies					
		All of the above					
Induction Training:	Which year you received	School Information: Is your school					
Have you received induction	induction training?	attached with any High or Higher					
training?	-	Secondary School?					
🗖 Yes 🗖 No	Was IT component of your	□ Yes □ No					
If yes, please answer the	induction training?	If yes, please answer the					
following questions otherwise	□ Yes □ No	following auestions otherwise					
move to "School Information"		move to Section II					

2. ACCESS TO DIGITAL FACILITIES	5	
2.1 Do you have access to a	2.2 Is the mobile that you have	2.3 If yes, which type of mobile do
mobile?	access to is a:	you have or can access?
Yes	Personal mobile	Simple phone

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	Shared mo	hile	with f	amily	, r	ר קר	nart nhone		
		-		anny					
2.4 Which of the following	2.5 Which type of mobile					2.6 Does your mobile have a slot			
software does it have?	connection do you use?					fo	or micro-SD ca	irds?	
□ Android □ Windows	Pre-paid		Post-	paid	0	J Ye	es 🗖 No		
□ iOS □ Don't know	Don't know	N			0	D	on't know		
2.7 Which of the following digital fa	cilities do you	have	acces	ss to?	P (Plea	ase ti	ick as many aj	oplicable	e)
Digital Facilities H	ome School	D	igital	Facil	ities		H	lome	School
Desktop Computer	0 0	La	aptop	)					
Tablet Device	0 0	D	ata P	roject	tor				
Interactive White Board									
Any other; please specify:		N	one c	of the	abov	/e			]
In case the PST has access to any of	the mentioned	d digit	tal fa	cilitie	s at s	choo	l, please ask t	he follo	wing
questions (2.8.1 till 2.8.5) or else mo	ove to question	า 2.9							
2.8 Are you and your colleagues (PS	Ts of your scho	ool) a	llowe	d	2.8.	1 For	what purpos	e do you	u use
to use the available digital facilities	) (e.g. compute	r, lapt	op, ta	blet	the	avail	able digital fa	cilities?	
device, data projector and an interactiv	e white board)				(com	puter,	, laptop, tablet d	evice, smo	art phone,
🗖 Yes 🗖 No					smai	rt IV, ( aboar	a data projector, പ	an intera	ctive
If yes, how often do you use the cor	nputers of the	avail	able			Tear	hing		
digital facilities?							n nlanning		
Daily  Twice a week	Once a we	ek				Reco	arch for learn	ing and	
Anytime Other	Never				top	hing		ing anu	
For what duration can you use/ accord	ess the equipm	ent(s	5)?			∩nlir			
Any time during school	ring specific cl	ass pe	eriode	S		Dorse			
During your free period  Aft	er school time					Otho		sif	
					•	othe	i, please spec		
2.8.2 Do you require any support th	e available dig	ital fa	acilitie	es? (c	 omnu	ter. lo		vice. sm	art
phone, smart TV, a data projector, an ir	iteractive white	board	)			,	, , , , , , , , , , , , , , , , , , ,	,	
□ Yes □ No If	ves, what kind	d of s	, uppol	rt do	vou r	need	?		
Technical support to use the face	ility		••						
Logistical help (setting up, provi	, sion of require	d ass	istand	ce ( <i>e.</i>	a. fasi	t inter	net connection	, extensi	on cable,
wiring etc.)									
Other, please specify:									
2.8.3 Are your students also allowed	to use the av	ailabl	e digi	ital fa	cilitie	es?			
□ Yes □ No I	f yes, which cla	iss ha	s acc	ess to	thos	se dig	gital facilities		
Digital Facility	NRS/PRP	Ι	=	Ш	IV	v	All Classes	N	one
Computer/Laptop									
Tablet Device									
Smart Phone									
Smart TV									
A Data Projector									
An Interactive White Board									
2.8.3.1 How often do they use them?									
Daily  Twice a week  Once a week  Anytime  Other									
2.9 Have you or your school benefitted from any Govt. or NGO initiative to incorporate technology in class room teaching or teacher's training?									

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□ Yes □ No □ Don't know	If Yes, what kinds of initiative were taken?					
<ul> <li>Provision of technological equipment</li> <li>Technological equipment</li> </ul>	eacher Training 🗖 E-Learning					
3. USAGE & SUPPORT TO TEACHERS FOR DIGITAL	3. USAGE & SUPPORT TO TEACHERS FOR DIGITAL FACILITY(IES) USE					
3.1 Which type of following Digital Literacy (DL) related professional development have you received						
during your teaching career?						
□ Introductory courses on internet use and general applications (basic word-processing, spreadsheets,						
presentations, databases, etc.)						
<ul> <li>Courses on the pedagogical use of Digital facility</li> </ul>	/ in teaching and learning					
Subject-specific training on learning application	s (tutorials, simulations, etc.)					
Course on multimedia (using digital video, audio	equipment, etc.)					
Participate in online communities (e.g. mailing l other teachers	ists, twitter, blogs) for professional discussions with					
Training on digital literacy provided by school s	taff					
Personal learning about digital literacy in your o	wn time					
3.2 Do you use mobile/computer/tablet / any other	r digital facility in the class?					
□ Yes □ No (If yes, ask the follow	ving sub-questions 3.2.1 & 3.2.2)					
Preparing lessons     Class teaching	Prenaring lessons     Class teaching     Students practice					
3.2.2 Do you use any expert's support while using for	or teaching purposes?					
□ Yes □ No						
3.3 If you use Digital facility in lessons what type	3.4 Is your use of digital facility in teaching and					
that applicable)	a. Insufficient number of computers					
a. A more experienced / knowledgeable teacher	🗖 A lot 🗖 Little 🗖 Partially 🗖 Not at all					
Mostly technical support						
<ul> <li>Mostly pedagogical support</li> <li>Both technical and pedagogical support</li> </ul>	<ul> <li>b. Lack of adequate skills to use computer and/or internet</li> </ul>					
<ul> <li>Both technical and pedagogical support</li> <li>None of the above</li> </ul>	Alot Little Partially Not at all					
b. School ICT/technology coordinator						
Mostly technical support	c. Lack of content in national language					
<ul> <li>Mostly pedagogical support</li> </ul>	🗖 A lot 🗖 Little 🗖 Partially 🗖 Not at all					
Both technical and pedagogical support						
None of the above Other school staff	d. Lack of interest of teachers					
<ul> <li>Mostly technical support</li> </ul>	e. No or unclear benefit to use ICT for teaching					
<ul> <li>Mostly pedagogical support</li> <li>Both technical and pedagogical support</li> </ul>	🗖 A lot 🗖 Little 🗖 Partially 🗖 Not at all					
<ul> <li>None of the above</li> </ul>						
d. Experts from outside the school	<ol> <li>Lack of training/ capacity development options related to ICT</li> </ol>					
Mostly technical support	□ A lot □ Little □ Partially □ Not at all					
Mostly pedagogical support	g. My pedagogical belief, I do not want to use					
Both technical and pedagogical support	digital technology in my teaching					
None of the above	🗖 A lot 🗖 Little 🗖 Partially 🗖 Not at all					



3.5 Have you ever used the following platforms		3.6 In your opinion:			
	for on-line courses?	a)	What can be the possible impact of use of		
	Edmodo		digital facilities for learning and teaching?		
	MOOCs		Improved access to learning and teaching		
	Other, please specify:		resources		
	None		Increased opportunities to CPD		
			Better equipped students to enter 21 Century		
			All of above		
		b)	What kind of challenges do you anticipate in		
			schools to use digital technology for teaching		
			and learning?		
			Capacity building of PSTs		
			Time constraint for teachers		
			Power shortage		
			Lack of Infrastructure		
			All of above		

#### 4. PROFESSIONAL DEVELOPMENT OPTION(S)

4.1 Do you think if it will be	4.2 To what extent do you agree	4.3	Which of the following training		
beneficial for primary	with the following modes of	met	methods best suit your context?		
teachers to have some	training?	(Tic	k as many applicable)		
training/ capacity building	Virtual Trainings can be easily used		Face to Face (Traditional		
on digital literacy?	as a substitute of traditional		training)		
	training method.				
🗖 Yes 🗖 No	Strongly agree Agree		Online Training		
Don't know	Disagree				
	Strongly disagree		Blended Learning (Mix of		
	Online trainings with modules and		online and face to face)		
	assignments can be easily used as a				
	substitute of traditional training		Mentoring and Peer		
	method.		Learning		
	Strongly agree Agree				
	Disagree		Exposure visits to other		
	Strongly disagree		Schools		

#### **Section B: Digital Literacy**

5. Mobile & Communication App usage							
5.1 For which of the activities	5.2 Using a mobile device, do	5.3 Using mobile device, do you					
do you use your mobile?	you use a communication app	know how to send a message					
(Tick all that applicable)	■Yes ■No If yes, which one:	through:					
Social media  E-mail	Whatsapp	Whatsapp					
Professional development	FB messenger	FB messenger					
Communication:	Skype	Skype					
Calls	Viber	Viber					
Text messages	Snapchat	Snapchat					
Teaching purposes	Telegram	Telegram					



Using paid content for	Other, please specify:	Other, please specify:
professional development		
5.4 Using mobile device, do you	5.5 Using mobile device, do	5.6 Using mobile device, which
know how to make a video call	you know how to create a	social networks do you participate
through:	group in:	in:
Whatsapp	Whatsapp	Facebook
FB messenger	FB messenger	Twitter
Skype	Skype	Instagram
Viber	Viber	LinkedIn
Snapchat	Snapchat	Youtube
Telegram	Telegram	□ Google+
Other	Other	Tumbler
		Reddit
		Other (please specify)
		If yes, do you use these only for
		personal purposes or also for
		professional purposes?
		🗖 Yes 🗖 No

6.	ELECTRONIC Mail INFORMATION If you have never used a web browser, please ticl	< D	I.
Do	you have an email ID?	На	we you ever purchased goods or services over the
	Yes 🗖 No	int	ernet (online) using a credit/debit card or PayPal,
-If	yes, for which purpose do you use it?	Eas	syPaisa or some other financial transaction service?
	Social Media		Yes
	Work Dersonal use		No
	Any other		
-Ho	bw you check access your email account? Through:		
	Mobile 🗖 Desktop 🗖 Laptop 🗖 Tablet		
-Ho	ow frequently do you check your email?		
	Daily 🗖 Once a week 🗖 Twice a week		
	Once in fifteen days		

#### Please complete the following questions; ticking the answer that you feel is most appropriate:

A: I can do thisB: I could do this, but would find it difficultC: I wouldn't know where to startN/A: I don't understand the question

7. USIN	NG THE COMPUTER AND MANAGING FILES				
		Α	В	С	N/A
1.	Start the computer and log in				
2.	Open a program from the Start menu				
3.	Create a shortcut on the desktop for a regularly used program				
4.	Copy a file without using Save As				
5.	Rename a file				
6.	Create a folder to organize your electronic files				
7.	Move a file from one location to another				
8.	Delete a file				



9.	Find the date a file was created		
10.	Find the size of a file		
11.	Log out and shut down the computer		

#### 8. MICROSOFT OFFICE

If you have never used Microsoft word/excel or power point, please tick  $\Box$  and move to the next section.

		Α	В	С	N/A
1.	Open an existing file (word/excel and/or ppt), add text and save				
2.	Save an existing document (word/excel and/or ppt), to another location				
3.	Insert a page break in a Word document				
4.	Copy text to another document				
5.	Use the Find command to find a word or phrase				
6.	Change the font and size of text				
7.	Set tabs to align text and numbers				
8.	Apply appropriate styles to a document				
9.	Apply appropriate styles to power point slides				
10.	Apply formulas to excel sheet cells				
11.	Create a header for text to appear on every page in word				
12.	Insert a table into a document (word/excel and/or ppt)				
13.	Insert an image into a document (word/excel and/or ppt)				

#### 9. ELECTRONIC MAIL

10. If you have never used email, please tick $\square$ and move to the next section.					
	Α	В	С	N/A	
1. Open an email program					
2. Read and reply to an email					
3. Compose a new message					
4. Attach a file to a newly composed message					
5. Forward an email to another person					
6. Add a contact to your address book					

1. Internet Usage					
	Α	В	С	N/A	
1. Open a browser (e.g. Internet Explorer or Firefox)					
2. Find information using a web address (URL)					
3. Follow a web link (hyperlink)					
4. Use a search engine to find information					
5. Reset the browser homepage					
6. Save a web page to your Favorites					

# 12. Content Sharing Platforms (i.e. youtube, vimeo, soundcloud, google drive etc.) If you have never used content sharing platforms, please tick □. A B C N/A

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1.	Create audio clip with your mobile		
2.	Create video clip with your mobile		
3.	Store data (audio/video) on memory card of the mobile		
4.	Access memory card data through mobile		
5.	Make an account on content sharing sites		
6.	Watch video clips on content sharing sites		
7.	Upload video/audio clip on content sharing websites		



#### 7.4 Annex – B In depth Interviews

#### In-depth Interviews: Questionnaire for PSTs

Study	District	UR/RU	MT/FT	GS/BS	Series NO	
DAL						
District: 1st 2 Alphabets, UR: Urban, RU: Rural, MT: Male Teacher, F: Female Teacher, GS: Girls School, BS: Boys School, Serial No: Form No						
Full Name of Surve	eyor: First Name:		Last Na	me:		

District:	Town:	Village:		
Date:///////		Time:::	AM 🗖	PM 🗖

**Introduction:** My name is \_\_\_\_\_\_\_. I am representing a consulting firm named DevTrio Consultants. We are conducting a research study to assess digital accessibility and literacy of PSTs in Punjab. The information gathered will be used strictly for research purposes and your identity and anonymity will be ensured. The information is important to modify future trainings you are offered so kindly think carefully and answer the questions. There are no right or wrong questions so please answer as you deem fit. Do I have the permission to proceed to asking you relevant questions and record your answers? You are free to withdraw from this research at any time by telling the Enumerator. **Thank You** 

#### Section 1: State of Digital Accessibility in the school

In case the school is attached to middle/high or higher secondary school please start with Q1 or else start interview with Q4.

- 1. Do you have access to IT lab present in the school?
- 2. Do you need any permission to use IT lab? If yes, what is the process?
- 3. What kind of resources are there in the lab? *Probe:* Is there internet connection? If yes, what kind of internet do you use? How effective the speed is? If that internet connection suffices your needs/ requirements? What is the data limit for the internet? Do the desktops in the IT lab have camera, speaker or both?
- 4. What is the usual mode of teaching that you and other primary teachers used in your school? *Probe: Do you use digital technology?*



5. What kind of digital resources (*Desktop computer, Laptop, data projector, tablets, interactive white board etc.*) can you access at school and how comfortable are you using it? If there are computers or tabs at school, how often do you use them?

**Probe:** If there are resources at school and the teacher doesn't use them, ask the reasons. See of it's a capacity issue or administrative challenge.

# 6. Is there an internet connection at school? *Probe:* If yes, what kind of internet do you use? How effective the speed is? If that internet connection suffices your needs/ requirements? What is the data limit for the internet?

#### 7. Do you have computer at home? If yes, how often do you use it?

**Probe:** Do you have access to internet at home? If yes, what kind of internet do you use? How effective the speed is? If that internet connection suffices your needs/ requirements? What is the data limit for the internet?

#### 8. Do you have a mobile?

**Probe:** Is it a smart phone or type phone? Which software it has? Do you have a prepaid or postpaid connection? Does your mobile have a memory card? Do you have internet access through your mobile? What is the data limit for your internet?

# 9. For what purposes you use mobile (emails/social media/teaching /professional development)? Probe: How often do you use mobile for each of these purposes? Have you ever taken help of mobile for teaching purpose i.e. downloading teaching material? If yes, ask for examples. Have you ever downloaded any educational mobile application? If YES, ask for the name.



#### Section 2: Digital literacy

- 10. What do you feel more comfortable using, computer, mobile or both? Why?
- 11. For what purposes do you use computer and mobile mostly? For what purpose is mobile used mostly? How comfortable are you using mobile for communication on social media i.e. whatsapp, skype, viber, facebook messenger etc on mobile?

**Probe:** Ask if it is used for Communication/ Calls/ Social Media/ Internet etc.

12. How confident do you feel using computer for Microsoft office including: word, excel and power point?

**Probe:** Ask for word, excel and power point separately. Also ask how often do they use that particular program and for what purpose do they use? Do they require support in using them? Do they feel confident independently working on each of these.

13. Do you have an email ID? How often do you check email? Can you compose email yourself on phone and/or mobile?

**Probe:** Can you send some document as attachment to email?

14. Can you record audio and video on mobile and upload it on some vimeo/ youtube/ snapchat/ Instagram/ sound cloud etc.? If yes how confident are you on doing this on your own?



#### 7.5 Annex - C Key Informant Interviews (KIIs)

#### **Key Informant Interviews: Questionnaire for Head Teachers**

Study	District	UR/RU	MT/FT	GS/BS	Series NO
DAL					
District: 1st 2 Alphabets, UR: Urban, RU: Rural, MT: Male Teacher, F: Female Teacher, GS: Girls School, BS: Boys School, Serial No: Form No					

Full Name of Surveyor: First Name:		_ Last Name:		
District:	Town:	Village:		
Date:///		Time::	AM D PM D	

**Introduction:** My name is \_\_\_\_\_\_\_. I am representing a consulting firm named DevTrio Consultants. We are conducting a research study to assess digital accessibility and literacy of PSTs in Punjab. The information gathered will be used strictly for research purposes and your identity and anonymity will be ensured. The information is important to modify future trainings you are offered so kindly think carefully and answer the questions. There are no right or wrong questions so please answer as you deem fit. Do I have the permission to proceed to asking you relevant questions and record your answers? You are free to withdraw from this research at any time by telling the Enumerator. **Thank You** 

#### Sec 1: State of Digital accessibility

Is your primary school attached to secondary/higher secondary school? (If the answer is NO move to Q5; If YES, continue)
 Probe: Does secondary/higher secondary school has IT lab? If yes, how often do you visit the IT

**Probe:** Does secondary/higher secondary school has IT lab? If yes, how often do you visit the IT lab? For what main purposes do you use the lab?

#### 2. How often PSTs visit IT lab?

**Probe** What is the purpose of their visit? Do you encourage them in doing so? Please elaborate your answer. If any PST come to you for IT related support, how do you help?

#### 3. What is the purpose of using tablet for 1–3 grades?

**Probe:** Can PSTs access tablet after school hours? Do PSTs get trainings related to tablet use? What is your view on PSTs capacity on use of tablets?



4. What do you think about the role of digital facilities and their accessibility at primary school level?

**Probe:** Do you think this would help teachers to improve student learning at primary level. How important it is to have digital accessibility at primary schools?

5. What is the current state of digital accessibility for Primary School Teachers?

**Probe**: Do your teachers access internet or computers through any source? Does your primary school have any digital resources e.g. computers/ IT lab, tablets, any other digital equipment or internet connection?

6. What challenges are faced by your primary school teachers related to digital accessibility (or inaccessibility)?

**Probe:** How can this be improved? What support do you require to mitigate these challenges?

#### Sec 2: IT training and IT literacy of PSTs

7. What kind of trainings related to digital technology do PSTs get at the time of induction and afterwards?

Probe: To keep IT skills of PSTs up to date, do CPD trainings have an IT component in it?

8. Did you take any steps for improving digital knowledge and skills of experienced teachers lagging behind in IT aspect?

**Probe:** Do you encourage your teachers to apply and attend capacity building opportunities? Do you support your teachers to meet other PSTs of surrounding schools to share experiences for learning purposes?



9. Have you taken any step in personal capacity or with NGO for improving digital literacy of PSTs? If answer is YES, please give examples.

#### Sec 3: Non-traditional methods of CPD

- **10.** How do you see non-traditional methods of CPD (online through computer or mobile)? *Probe:* How do you access the effectiveness of such options? What hurdles do you foresee related to such option? Give recommendations to address those hurdles.
- **11.** In your opinion, how practical would it be to use cell phones as a mode of training for the PSTs? *Probe: Please share some practicality and possible options.*

12. Considering the resources and available resources and digital equipment, if and how can digital technology be used for the delivery of trainings to primary school teachers? *Please elaborate with examples* 



#### 7.6 Annex - D Key Informant Interviews (KIIs)

#### Questionnaire for Key Informant Interviews for Representatives of QAED and PEELI

Form ID:			
Full Name of Surveyor: First Name: _		Last Name:	
District:	_Town:	Village:	
Date:///////		Time:: AM 🗖	PM 🗖
Introduction: My name is Consultants. We are conducting a re	search study	I am representing a consulting firm r to assess digital accessibility and IT lite	named DevTric racy of PSTs ir

Punjab. The information gathered will be used strictly for research purposes and your identity and anonymity will be ensured. The information is important to modify future trainings you are offered so kindly think carefully and answer the questions. There are no right or wrong questions so please answer as you deem fit. Do I have the permission to proceed to asking you relevant questions and record your answers? You are free to withdraw from this research at any time by telling the Enumerator. **Thank You** 

#### Sec 1: State of Digital Accessibility

- 1. How well equipped do you think primary schools are in terms of Digital Accessibility? *Probe:* Do you think this needs to be improved? If answer is YES, please enlist the possible options for improvements. Would it be helpful for PSTs to have improved digital accessibility? If answer is YES, provide details.
- Do you think there are financial resources with schools (school management committee) to improve the digital accessibility i.e. provision of computer(s) and internet?
   Probe: If answer is YES, how can they utilize those resources to improve digital accessibility?
- 3. Do you think that the primary schools that are attached to high/higher secondary schools have better digital accessibility than other primary schools? *Probe:* Do PSTs of these attached primary schools have better IT related capacity and usage than other primary teachers?

#### Sec 2: IT literacy and IT training of PSTs

- 4. In the light of experience, please share how well-versed PSTs are in digital technology? *Probe:* What is their capacity to use computer/mobile or similar technology on their own for teaching purpose or otherwise? What kind of challenges and issues do they face related to building their digital technology usage capacity? How can their capacity be built further?
- 5. Are they being provided any training related to ICT and/or digital technology during induction and/or afterwards? If yes, what contents are covered in those trainings?

**Probe:** Do you think ICT related trainings are important to build capacity of teachers? Are these trainings prove helpful to improve usage of digital technology of teachers?

6. In your trainings which training delivery methods are mostly used?



**Probe:** there any training method being used that involves ICT? If answer is YES, please elaborate. How do teachers respond to such modules? Do you think these modules need to be scaled up?

7. What role the already provided Tablets or any other provided equipment can play in improving their digital literacy?

**Probe:** Do you feel it has brought any improvements? If answer is YES, please give examples.

8. Considering the given context and limited resources in schools, how can digital literacy of teachers be improved?

**Probe:** Will training be of any help to them? How would they practice it in absence of proper infrastructure?

#### Sec 3: Non-traditional training methods

9. Other than traditional method, (face to face/lecture) which other methods do you think are practically feasible for PST's training?

**Probe:** Can ICT be used for delivery of training? If answer is YES, please elaborate possibilities e.g. online training; blended modules; online modules and assignments; virtual sessions etc.

- **10.** In your opinion, how practical would it be to use cell phones as a mode of training for the PSTs? *Probe: Please share some practicality and possible options.*
- 11. Considering the resources and available resources and digital equipment, if and how can digital technology be used for the delivery of trainings to primary school teachers? *Please elaborate with examples.*



#### 7.7 Field Team Training Agenda

Two Day Training Workshop for Field Team for the Project

	Training Agenda	
Organize	ed by: Date://	Venue:
Time	Session	Facilitator
Day -	1	<u> </u>
09:15	Registration of Participants	Muhammad Zain Bin Akbar
09:30	Recitation	Participants
09:45	Welcome to Participants	Consultants
09:55	Introduction of Participants	Participants
10:05	Introduction of Project and Objectives of Study	Consultants
10:20	Objectives of Workshop	Consultants
10:30	Discussions on Process Methodology and Data Collection Tools of National Gender Study	Consultants
11.30	Tea Break	1
11.45	<b>Elaboration of Data Collection Tools</b> Quantitative Tool for PSTs and selection of respondents category wise	Consultants
02:00 I	Lunch Break	<u></u>
02:35	<ul> <li>Elaboration of Data Collection Tools</li> <li>Checklist of IDIs and selection of respondents</li> <li>Checklists for Key Informant Interviews (KIIs) and selection of</li> </ul>	Consultants
04:00	Question & Answers session	
04:30	Tea Break	
05:00	Mock trial session for using research instruments	All Participants
06:00	Feedback session	All Participants
06:00	Adjourn of the Day	1
Day-2		
09:00	Recap of day 1	Consultants


09:30	Checklists for Key Informant Interviews (KIIs) and selection of respondents	Consultants
11:45	Tea Break	
12:00	Understanding of Sample Size	Consultants
01:00	Lunch Break	
01:30	Question and answers	All Participants
02:00	Data Collection Planning / Strategy	All Team Members
03:00	Mock trial session for using research	All Participants
04:15	Tea Break	
04:45	Feedback session	All Participants
05:30	Handing over questionnaires, introductory letter, Stationary and other required accessories to participants	
06:00	Adjourn of the Day	



## 7.8 Field Protocols

### DOs

- Be polite at all times when approaching the respondents
- Introduce yourself.
- Explain the purpose of the survey and ask for the respondent's consent to carry out the interview and tape-record it.
- Tell the respondent how much time the interview will take.
- Ensure respondents of their anonymity and privacy
- Conduct the interview at the appropriate place.
- Focus your attention on the respondent.
- Use a conversational tone avoid having the interview sounding like an interrogation.
- Speak slowly and clearly.
- Wait patiently for a response. Probe politely if the question was not answered.
- Repeat the question. Ask the question again. If the respondent doesn't understand a question or his/her answer is not clear, Avoid changing the wording of the question too much.
- Stay neutral when you probe.
- Try to clarify confusions if an answer given contradicts something the respondent said earlier.
- Take picture of respondent or any suggested place carefully. Take consent of the respondents especially females before taking a photo (if any)
- Check off the completed interview on your part before leaving the respondents.
- Submit the completed questionnaires to the field supervisor / coordinator at the end of the day.
- Charge the battery of your Smart phone / Camera every day.
- Check that Smart phone / Camera have enough empty space for ample pictures.

#### Don'ts

- DON'T offer or accept gifts.
- DON'T push a respondent to answer more quickly.
- DON'T get angry. Stay polite and friendly.
- DON'T change the wording or the order of the questions.
- DON'T skip questions. Ask them exactly as they appear.
- DON'T guide/direct the respondent's answer.
- DON'T suggest a response by non-verbal communication-your voice, facial expression or attitude.
- DON'T imply that a response is correct or incorrect.
- DON'T show approval or disapproval.
- DON'T raise hopes of the respondent.
- DON'T be aggressive or dominating in the field.
- DON'T leave blank spaces in the data collection form; all data should be entered in the field.
- DON'T rush for the other location; make sure that all the data from the field is carefully and thoroughly collected.
- DON'T go into the field without proper tools.



- DON'T use mobile during interviewing, better to keep it on silent mode.
- DON'T take unnecessary risk in the field; try to finish the task before sunset.
- DON'T overwrite in the answer sheet (either use Blanco) or cut the error and write the fresh note).
- Do not use a pencil to fill out the forms.



# References

# **Resources Consulted for Literature Review**

- Bashiruddin, A. (2011). Teachers' professional development through integrating ICT in English language education: A case from Pakistan. In A. Pandian, S. A. M. M. Ismail, & T. C. Hiang (Eds.), Teaching and learning in diverse contexts: Issues and approaches (pp. 260-268). Penang: School of languages, Literacies and Translation, USM.
- 2. British Council (2015) *Technology for professional development: access, interest and opportunity for teachers of English in South Asia.* British Council: New Delhi.
- Collis, B., & Jung, I. S. (2003). Uses of information and communication technologies in teacher education. In B. Robinson & C. Latchem (Eds.), *Teacher education through open and distance learning*, London: RoutledgeFalmer, 171-192.
- Developed by Ministry of Education, Islamabad, in collaboration with Education Sector Reform Assistance (ESRA) Program. (2018). National Information and Communications Technology Strategy for Education in Pakistan. Retrieved from

http://www.unescobkk.org/uploads/media/NICT\_Strategy\_For\_Education\_in\_Pakistan\_

-\_\_Mar\_2007.pdf

- 5. Dropout rate by grade | UNESCO UIS. (2018). Retrieved from http://uis.unesco.org/en/glossaryterm/dropout-rate-grade
- 6. Fontaine, M. (2000). Teacher training with technology: Experience in five country programs. *TechKnowLogia, November/December*, 69-71.
- 7. Freeman, M. (1997). Flexibility in access, interaction and assessment: the case for web-based teaching programs. Australian Journal of Educational Technology, 13 (1), 23-39.
- 8. Government of the Punjab. (2017). *Report on Annual School Census 2017-18*. Retrieved from http://www.pesrp.edu.pk/downloads/library/Report\_on\_Annual\_School\_Census\_2017\_18.pdf
- Jung, I. (2005). ICT-Pedagogy Integration in Teacher Training: Application Cases Worldwide. *Educational Technology & Society*, 8(2), 94-101.
- 10. Kelly, T. (2010). Survey of ICT for Education in India and South Asia.
- Ministry of Federal Education and Professional Training. (2017). National Education Policy 2017. Islamabad: Government of Pakistan. Retrieved from http://www.moent.gov.pk/userfiles1/file/National%20Educaiton%20Policy%202017.pdf
- 12. Retallick, J and Shamim, F. (2005) Enhancing Online teaching and learning at AKU-IED. Research Report, AKU-IED.
- 13. Robinson, B. (2008). Using distance education and ICT to improve access, equity and the quality in rural teachers' professional development in western China. *International Review Of Research In Open And Distance Learning*, (1492-3831).



- 14. UNESCO. (2008). ICT in Teacher Education: Case Studies from the Asia-Pacif ic Region. UNESCO.
- Unwin\*, T. (2005). Towards a framework for the use of ICT in teacher training in Africa. Open Learning: The Journal Of Open, Distance And E-Learning, 20(2), 113-129. doi: 10.1080/02680510500094124

## **Resources Consulted for Tool Development**

- 1. (2018). Retrieved from http://www.oecd.org/education/research/42419091.pdf
- (2018). Retrieved from http://essie.eun.org/c/document\_library/get\_file?uuid=d03d72a0-319f-45b4-8bbc-4d95bcbdb107&groupId=21279
- 3. University of Kent. (2010). IT skills questionnaire [Ebook].





Submitted to

